

SEQUENCE LISTING

<110> Alitalo et al

<120> VEGF-C OR VEGF-D MATERIALS AND METHODS FOR TREATMENT OF NEUROPATHOLOGIES

<130> 28967/37564B

<160> 38

<170> PatentIn version 3.0

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<221> CDS

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Asp Leu Glu Pro Asp Ser Asn Pro Pro Gly Gly Met Phe Cys Arg Tyr				
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His Pro Ser Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Asp Pro Tyr
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Gln Arg Ile Met Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg
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Asp Cys Lys Tyr Asp Tyr Val Glu Val Phe Asp Gly Glu Asn Glu Asn
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200

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755 760 765

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785 790 795 800

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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu		
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Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr		
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aca gtg aaa ggt gtc atc atc cag gga gcc cgc gga gga gac agt atc Thr Val Lys Gly Val Ile Ile Gln Gly Ala Arg Gly Gly Asp Ser Ile 500 505 510				1536
act gct gtg gaa gcc aga gca ttt gtg cgc aag ttc aaa gtc tcc tac Thr Ala Val Glu Ala Arg Ala Phe Val Arg Lys Phe Lys Val Ser Tyr 515 520 525				1584
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gac tgg aca gac tcc aag ccc acg gta aaa acg ctg gga ccc act gtg Asp Trp Thr Asp Ser Lys Pro Thr Val Lys Thr Leu Gly Pro Thr Val 595 600 605				1824
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cct tcg gga ttc aat tgc aac ttc gat ttc ctc gag gag ccc tgt ggt Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Leu Glu Glu Pro Cys Gly 645 650 655				1968
tgg atg tat gac cat gcc aag tgg ctc cgg acc acc tgg gcc agc agc Trp Met Tyr Asp His Ala Lys Trp Leu Arg Thr Thr Trp Ala Ser Ser 660 665 670				2016
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Gln Ala Thr Gly Gly Arg Gly Val Ala Leu Gln Val Val Val Arg Glu Ala			
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Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Gly			
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gag tgg aag cac ggg cgg atc atc ctg ccc agc tac gac atg gag tac			2304
Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr			
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cag att gtg ttc gag gga gtg ata ggg aaa gga cgt tcc gga gag att			2352
Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile			
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Ala Ile Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys			
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Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Ile His Glu			
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aga gaa gga tat gaa gat gaa att gat gat gaa tac gag gtg gac tgg			2496
Arg Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Val Asp Trp			
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agc aat tct tct tct gca acc tca ggg tct ggc gcc ccc tcg acc gac			2544
Ser Asn Ser Ser Ala Thr Ser Gly Ser Gly Ala Pro Ser Thr Asp			
835	840	845	
aaa gaa aag agc tgg ctg tac acc ctg gat ccc atc ctc atc acc atc			2592
Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile			
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atc gcc atg agc tca ctg ggc gtc ctc ctg ggg gcc acc tgt gca ggc			2640
Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly			
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ctc ctg ctc tac tgc acc tgt tcc tac tgc ggc ctg agc tcc cga agc			2688
Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser			
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tgc acc aca ctg gag aac tac aac ttc gag ctc tac gat ggc ctt aag			2736
Cys Thr Thr Leu Glu Asn Tyr Asn Phe Glu Leu Tyr Asp Gly Leu Lys			
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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu
85 90 95

Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr
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Ile Ile Ser Ser Gly Ser Met Leu Tyr Ile Lys Phe Thr Ser Asp Tyr
115 120 125

Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr
130 135 140

Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile
145 150 155 160

Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr
165 170 175

Phe Thr Ile Leu Ala Lys Pro Lys Met Glu Ile Ile Leu Gln Phe Leu
180 185 190

Ile Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys
195 200 205

Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro
210 215 220

Leu Ile Gly Lys Tyr Cys Gly Thr Lys Thr Pro Ser Glu Leu Arg Ser
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245 250 255

Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Val His Gln Glu Pro Leu
260 265 270

Glu Asn Phe Gln Cys Asn Val Pro Leu Gly Met Glu Ser Gly Arg Ile
275 280 285

Ala Asn Glu Gln Ile Ser Ala Ser Ser Thr Tyr Ser Asp Gly Arg Trp
290 295 300

Thr Pro Gln Gln Ser Arg Leu His Gly Asp Asp Asn Gly Trp Thr Pro
305 310 315 320

Asn Leu Asp Ser Asn Lys Glu Tyr Leu Gln Val Asp Leu Arg Phe Leu
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Thr Met Leu Thr Ala Ile Ala Thr Gln Gly Ala Ile Ser Arg Glu Thr
340 345 350

Gln Asn Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn
355 360 365

Gly Glu Asp Trp Met Val Tyr Arg His Gly Lys Asn His Lys Val Phe
370 375 380

Gln Ala Asn Asn Asp Ala Thr Glu Val Val Leu Asn Lys Leu His Ala
385 390 395 400

Pro Leu Leu Thr Arg Phe Val Arg Ile Arg Pro Gln Thr Trp His Ser
405 410 415

Gly Ile Ala Leu Arg Leu Glu Leu Phe Gly Cys Arg Val Thr Asp Ala
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Pro Cys Ser Asn Met Leu Gly Met Leu Ser Gly Leu Ile Ala Asp Ser
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Ala Arg Leu Val Ser Ser Arg Ser Gly Trp Phe Pro Arg Ile Pro Gln
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Ala Gln Pro Gly Glu Glu Trp Leu Gln Val Asp Leu Gly Thr Pro Lys
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Gln Pro Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile
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Lys Ser Glu Glu Thr Thr Pro Tyr Pro Thr Glu Glu Glu Ala Thr
610 615 620

Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu
625 630 635 640

Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Leu Glu Glu Pro Cys Gly
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Trp Met Tyr Asp His Ala Lys Trp Leu Arg Thr Thr Trp Ala Ser Ser
660 665 670

Ser Ser Pro Asn Asp Arg Thr Phe Pro Asp Asp Arg Asn Phe Leu Arg
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Leu Gln Ser Asp Ser Gln Arg Glu Gly Gln Tyr Ala Arg Leu Ile Ser
690 695 700

Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr
705 710 715 720

Gln Ala Thr Gly Arg Gly Val Ala Leu Gln Val Val Arg Glu Ala
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740 745 750

Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr
755 760 765

Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile
770 775 780

Ala Ile Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys
785 790 795 800

Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Ile His Glu
805 810 815

Arg Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Val Asp Trp
820 825 830

Ser Asn Ser Ser Ala Thr Ser Gly Ser Gly Ala Pro Ser Thr Asp
835 840 845

Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile
850 855 860

Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly
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Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser
885 890 895

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Gly Leu Pro Leu Leu Cys Ala Thr Leu Ala Leu Ala Leu Ala Leu Ala	
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Gly Ala Phe Arg Ser Asp Lys Cys Gly Gly Thr Ile Lys Ile Glu Asn	
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Pro Gly Tyr Leu Thr Ser Pro Gly Tyr Pro His Ser Tyr His Pro Ser	
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Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Glu Pro Tyr Gln Arg Ile	
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Ile Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg Asp Cys Lys	
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Tyr Asp Tyr Val Glu Val Ile Asp Gly Glu Asn Glu Gly Arg Leu	
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Trp Gly Lys Phe Cys Gly Lys Ile Ala Pro Ser Pro Val Val Ser Ser	
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Gly Pro Phe Leu Ile Lys Phe Val Ser Asp Tyr Glu Thr His Gly	
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Cys Gly Gln Lys Thr Pro Gly Arg Ile Arg Ser Ser Gly Val Leu	
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Trp Ile Ser Leu Lys Glu Gly Asn Lys Ala Ile Ile Phe Gln Gly Asn
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Thr Asn Pro Thr Asp Val Val Leu Gly Val Phe Ser Lys Pro Leu Ile
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Thr Arg Phe Val Arg Ile Lys Pro Val Ser Trp Glu Thr Gly Ile Ser
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Met Arg Phe Glu Val Tyr Gly Cys Lys Ile Thr Asp Tyr Pro Cys Ser
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Gly Met Leu Gly Met Val Ser Gly Leu Ile Ser Asp Ser Gln Ile Thr
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Ala Ser Asn Gln Ala Asp Arg Asn Trp Met Pro Glu Asn Ile Arg Leu
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Val Thr Ser Arg Thr Gly Trp Ala Leu Pro Pro Ser Pro His Pro Tyr
465 470 475 480

Thr Asn Glu Trp Leu Gln Val Asp Leu Gly Asp Glu Lys Ile Val Arg
485 490 495

Gly Val Ile Ile Gln Gly Gly Lys His Arg Glu Asn Lys Val Phe Met
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Arg Lys Phe Lys Ile Ala Tyr Ser Asn Asn Gly Ser Asp Trp Lys Thr
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Ile Met Asp Asp Ser Lys Arg Lys Ala Lys Ser Phe Glu Gly Asn Asn
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Asn Tyr Asp Thr Pro Glu Leu Arg Thr Phe Ser Pro Leu Ser Thr Arg
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Phe Ile Arg Ile Tyr Pro Glu Arg Ala Thr His Ser Gly Leu Gly Leu
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Arg Met Glu Leu Leu Gly Cys Glu Val Glu Ala Pro Thr Ala Gly Pro
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Thr Thr Pro Asn Gly Asn Pro Val His Glu Cys Asp Asp Asp Gln Ala
595 600 605

Asn Cys His Ser Gly Thr Gly Asp Asp Phe Gln Leu Thr Gly Gly Thr
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Thr Val Leu Ala Thr Glu Lys Pro Thr Ile Ile Asp Ser Thr Ile Gln
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Ser Glu Phe Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser
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His Lys Thr Phe Cys His Trp Glu His Asp Ser His Ala Gln Leu Arg
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Trp Ser Val Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly
675 680 685

Asp Gly Asn Phe Ile Tyr Ser Gln Ala Asp Glu Asn Gln Lys Gly Lys
690 695 700

Val Ala Arg Leu Val Ser Pro Val Val Tyr Ser Gln Ser Ser Ala His
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Cys Met Thr Phe Trp Tyr His Met Ser Gly Ser His Val Gly Thr Leu
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Arg Val Lys Leu Arg Tyr Gln Lys Pro Glu Glu Tyr Asp Gln Leu Val
740 745 750

Trp Met Val Val Gly His Gln Gly Asp His Trp Lys Glu Gly Arg Val
755 760 765

Leu Leu His Lys Ser Leu Lys Leu Tyr Gln Val Ile Phe Glu Gly Glu
770 775 780

Ile Gly Lys Gly Asn Leu Gly Gly Ile Ala Val Asp Asp Ile Ser Ile
785 790 795 800

Asn Asn His Ile Ser Gln Glu Asp Cys Ala Lys Pro Thr Asp Leu Asp
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Lys Lys Asn Thr Glu Ile Lys Ile Asp Glu Thr Gly Ser Thr Pro Gly
820 825 830

Tyr Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly
835 840 845

Asn Val Leu Lys Thr Leu Asp Pro Ile Leu Ile Thr Ile Ile Ala Met
850 855 860

Ser Ala Leu Gly Val Leu Leu Gly Ala Val Cys Gly Val Val Leu Tyr
865 870 875 880

Cys Ala Cys Trp His Asn Gly Met Ser Glu Arg Asn Leu Ser Ala Leu
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Pro His Phe Glu Ile Glu Lys His Asp Cys Lys Tyr Asp Phe Ile Glu		
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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu
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Ile Ile Ser Ser Gly Ser Val Leu Tyr Ile Lys Phe Thr Ser Asp Tyr
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Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile
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Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr
165 170 175

Phe Thr Ile Leu Ala Lys Pro Arg Met Glu Ile Ile Leu Gln Phe Leu
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Thr Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys
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Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro
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Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Ile His Gln Glu Pro Pro
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Asn Leu Asp Ser Asn Lys Glu Tyr Leu Gln Val Asp Leu Arg Phe Leu
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Gln Lys Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn
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Pro Leu Leu Thr Arg Phe Ile Arg Ile Arg Pro Gln Thr Trp His Leu
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Pro Cys Ser Asn Met Leu Gly Met Leu Ser Gly Leu Ile Ala Asp Thr
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Gln Ile Ser Ala Ser Ser Thr Arg Glu Tyr Leu Trp Ser Pro Ser Ala
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Ala Gln Pro Gly Glu Glu Trp Leu Gln Val Asp Leu Gly Thr Pro Lys
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Thr Ala Val Glu Ala Arg Ala Phe Val Arg Lys Phe Lys Val Ser Tyr
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Ser Leu Asn Gly Lys Asp Trp Glu Tyr Ile Gln Asp Pro Arg Thr Gln
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Gln Thr Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile
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Arg Arg Phe Asp Pro Val Pro Ala Gln Tyr Val Arg Val Tyr Pro Glu
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595 600 605

Lys Ser Glu Glu Thr Thr Pro Tyr Pro Met Asp Glu Asp Ala Thr
610 615 620

Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu
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Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Pro Glu Glu Thr Cys Gly
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Leu Gln Ser Asp Gly Arg Arg Glu Gly Gln Tyr Gly Arg Leu Ile Ser
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Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr
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Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr
755 760 765

Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile
770 775 780

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785 790 795 800

Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Thr His Gly
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Gly Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Gly Asp Trp
820 825 830

Ser Asn Ser Ser Ser Thr Ser Gly Ala Gly Asp Pro Ser Ser Gly
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Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile
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Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly
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885 890 895

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Val Pro Arg Leu Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn
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Val Ile Thr Phe Asn Gly Leu Ala Asn Ser Ser Tyr His Thr Phe
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Leu Leu Asp Glu Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His
65 70 75

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tgc acc tac att gaa att gga cat cat cct gag gac aat att ttt aag Cys Thr Tyr Ile Glu Ile Gly His His Pro Glu Asp Asn Ile Phe Lys 145 150 155	483
ctg gag aac tca cat ttt gaa aac ggc cgt ggg aag agt cca tat gac Leu Glu Asn Ser His Phe Glu Asn Gly Arg Gly Lys Ser Pro Tyr Asp 160 165 170	531
cct aag ctg ctg aca gca tcc ctt tta ata gat gga gaa tta tac tct Pro Lys Leu Leu Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser 175 180 185	579
gga act gca gct gat ttt atg ggg cga gac ttt gct atc ttc cga act Gly Thr Ala Ala Asp Phe Met Gly Arg Asp Phe Ala Ile Phe Arg Thr 190 195 200	627
ctt ggg cac cac cca atc agg aca gag cag cat gat tcc agg tgg Leu Gly His His Pro Ile Arg Thr Glu Gln His Asp Ser Arg Trp 205 210 215 220	675
ctc aat gat cca aag ttc att agt gcc cac ctc atc tca gag agt gac Leu Asn Asp Pro Lys Phe Ile Ser Ala His Leu Ile Ser Glu Ser Asp 225 230 235	723
aat cct gaa gat gac aaa gta tac ttt ttc ttc cgt gaa aat gca ata Asn Pro Glu Asp Asp Lys Val Tyr Phe Phe Arg Glu Asn Ala Ile 240 245 250	771
gat gga gaa cac tct gga aaa gct act cac gct aga ata ggt cag ata Asp Gly Glu His Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile 255 260 265	819
tgc aag aat gac ttt gga ggg cac aga agt ctg gtg aat aaa tgg aca Cys Lys Asn Asp Phe Gly His Arg Ser Leu Val Asn Lys Trp Thr 270 275 280	867
aca ttc ctc aaa gct cgt ctg att tgc tca gtg cca ggt cca aat ggc Thr Phe Leu Lys Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly 285 290 295 300	915
att gac act cat ttt gat gaa ctg cag gat gta ttc cta atg aac ttt Ile Asp Thr His Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe 305 310 315	963
aaa gat cct aaa aat cca gtt gta tat gga gtg ttt acg act tcc agt Lys Asp Pro Lys Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser 320 325 330	1011

aac att ttc aag gga tca gcc gtg tgt atg tat agc atg agt gat gtg Asn Ile Phe Lys Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val 335 340 345	1059
aga agg gtg ttc ctt ggt cca tat gcc cac agg gat gga ccc aac tat Arg Arg Val Phe Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr 350 355 360	1107
caa tgg gtg cct tat caa gga aga gtc ccc tat cca cg ^g cca gga act Gln Trp Val Pro Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr 365 370 375 380	1155
tgt ccc agc aaa aca ttt ggt ggt ttt gac tct aca aag gac ctt cct Cys Pro Ser Lys Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro 385 390 395	1203
gat gat gtt ata acc ttt gca aga agt cat cca gcc atg tac aat cca Asp Asp Val Ile Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro 400 405 410	1251
gtg ttt cct atg aac aat cgc cca ata gtg atc aaa acg gat gta aat Val Phe Pro Met Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn 415 420 425	1299
tat caa ttt aca caa att gtc gta gac cga gtg gat gca gaa gat gga Tyr Gln Phe Thr Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly 430 435 440	1347
cag tat gat gtt atg ttt atc gga aca gat gtt ggg acc gtt ctt aaa Gln Tyr Asp Val Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys 445 450 455 460	1395
gta gtt tca att cct aag gag act tgg tat gat tta gaa gag gtt ctg Val Val Ser Ile Pro Lys Glu Thr Trp Tyr Asp Leu Glu Val Leu 465 470 475	1443
ctg gaa gaa atg aca gtt ttt cgg gaa ccg act gct att tca gca atg Leu Glu Glu Met Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met 480 485 490	1491
gag ctt tcc act aag cag caa caa cta tat att ggt tca acg gct ggg Glu Leu Ser Thr Lys Gln Gln Leu Tyr Ile Gly Ser Thr Ala Gly 495 500 505	1539
gtt gcc cag ctc cct tta cac cgg tgt gat att tac ggg aaa gcg tgt Val Ala Gln Leu Pro Leu His Arg Cys Asp Ile Tyr Gly Lys Ala Cys 510 515 520	1587
gct gag tgt tgc ctc gcc cga gac cct tac tgt gct tgg gat ggt tct Ala Glu Cys Cys Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ser 525 530 535 540	1635
gca tgt tct cgc tat ttt ccc act gca aag aga cgc aca aga cga caa Ala Cys Ser Arg Tyr Phe Pro Thr Ala Lys Arg Arg Thr Arg Arg Gln 545 550 555	1683
gat ata aga aat gga gac cca ctg act cac tgt tca gac tta cac cat Asp Ile Arg Asn Gly Asp Pro Leu Thr His Cys Ser Asp Leu His His 560 565 570	1731
gat aat cac cat ggc cac agc cct gaa gag aga atc atc tat ggt gta Asp Asn His His Gly His Ser Pro Glu Glu Arg Ile Ile Tyr Gly Val 575 580 585	1779

gag aat agt agc aca ttt ttg gaa tgc agt ccg aag tcg cag aga gcg Glu Asn Ser Ser Thr Phe Leu Glu Cys Ser Pro Lys Ser Gln Arg Ala 590 595 600	1827
ctg gtc tat tgg caa ttc cag agg cga aat gaa gag cga aaa gaa gag Leu Val Tyr Trp Gln Phe Gln Arg Arg Asn Glu Glu Arg Lys Glu Glu 605 610 615 620	1875
atc aga gtg gat gat cat atc atc agg aca gat caa ggc ctt ctg cta Ile Arg Val Asp Asp His Ile Ile Arg Thr Asp Gln Gly Leu Leu Leu 625 630 635	1923
cgt agt cta caa cag aag gat tca ggc aat tac ctc tgc cat gcg gtg Arg Ser Leu Gln Lys Asp Ser Gly Asn Tyr Leu Cys His Ala Val 640 645 650	1971
gaa cat ggg ttc ata caa act ctt ctt aag gta acc ctg gaa gtc att Glu His Gly Phe Ile Gln Thr Leu Leu Lys Val Thr Leu Glu Val Ile 655 660 665	2019
gac aca gag cat ttg gaa gaa ctt ctt cat aaa gat gat gat gga gat Asp Thr Glu His Leu Glu Leu Leu His Lys Asp Asp Asp Gly Asp 670 675 680	2067
ggc tct aag acc aaa gaa atg tcc aat agc atg aca cct agc cag aag Gly Ser Lys Thr Lys Glu Met Ser Asn Ser Met Thr Pro Ser Gln Lys 685 690 695 700	2115
gtc tgg tac aga gac ttc atg cag ctc atc aac cac ccc aat ctc aac Val Trp Tyr Arg Asp Phe Met Gln Leu Ile Asn His Pro Asn Leu Asn 705 710 715	2163
acg atg gat gag ttc tgt gaa caa gtt tgg aaa agg gac cga aaa caa Thr Met Asp Glu Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln 720 725 730	2211
cgt cgg caa agg cca gga cat acc cca ggg aac agt aac aaa tgg aag Arg Arg Gln Arg Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys 735 740 745	2259
cac tta caa gaa aat aag aaa ggt aga aac agg acc cac gaa ttt His Leu Gln Glu Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe 750 755 760	2307
gag agg gca ccc agg agt gtc tga gctgcattac ctctagaaac ctcaaacaag Glu Arg Ala Pro Arg Ser Val 765 770	2361
tagaaaacttg cctagacaat aactggaaaa acaaatgcaa tatacatgaa ctttttcat	2421
ggcattatgt ggatgtttac aatggtggga aattcagctg agttccacca attataaatt	2481
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Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn Val Ile Thr Phe
35 40 45

Asn Gly Leu Ala Asn Ser Ser Ser Tyr His Thr Phe Leu Leu Asp Glu
50 55 60

Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His Ile Phe Ser Phe
65 70 75 80

Asp Leu Val Asn Ile Lys Asp Phe Gln Lys Ile Val Trp Pro Val Ser
85 90 95

Tyr Thr Arg Arg Asp Glu Cys Lys Trp Ala Gly Lys Asp Ile Leu Lys
100 105 110

Glu Cys Ala Asn Phe Ile Lys Val Leu Lys Ala Tyr Asn Gln Thr His
115 120 125

Leu Tyr Ala Cys Gly Thr Gly Ala Phe His Pro Ile Cys Thr Tyr Ile
130 135 140

Glu Ile Gly His His Pro Glu Asp Asn Ile Phe Lys Leu Glu Asn Ser
145 150 155 160

His Phe Glu Asn Gly Arg Gly Lys Ser Pro Tyr Asp Pro Lys Leu Leu
165 170 175

Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser Gly Thr Ala Ala
180 185 190

Asp Phe Met Gly Arg Asp Phe Ala Ile Phe Arg Thr Leu Gly His His
195 200 205

His Pro Ile Arg Thr Glu Gln His Asp Ser Arg Trp Leu Asn Asp Pro
210 215 220

Lys Phe Ile Ser Ala His Leu Ile Ser Glu Ser Asp Asn Pro Glu Asp
225 230 235 240

Asp Lys Val Tyr Phe Phe Arg Glu Asn Ala Ile Asp Gly Glu His
245 250 255

Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile Cys Lys Asn Asp
260 265 270

Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys
275 280 285

Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly Ile Asp Thr His
290 295 300

Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe Lys Asp Pro Lys
305 310 315 320

Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser Asn Ile Phe Lys
325 330 335

Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val Arg Arg Val Phe
340 345 350

Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr Gln Trp Val Pro
355 360 365

Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr Cys Pro Ser Lys
370 375 380

Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro Asp Asp Val Ile
385 390 395 400

Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro Val Phe Pro Met
405 410 415

Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn Tyr Gln Phe Thr
420 425 430

Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly Gln Tyr Asp Val
435 440 445

Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Val Ser Ile
450 455 460

Pro Lys Glu Thr Trp Tyr Asp Leu Glu Glu Val Leu Leu Glu Glu Met
465 470 475 480

Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met Glu Leu Ser Thr
485 490 495

Lys Gln Gln Gln Leu Tyr Ile Gly Ser Thr Ala Gly Val Ala Gln Leu
500 505 510

Pro Leu His Arg Cys Asp Ile Tyr Gly Lys Ala Cys Ala Glu Cys Cys
515 520 525

Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ser Ala Cys Ser Arg
530 535 540

Tyr Phe Pro Thr Ala Lys Arg Arg Thr Arg Arg Gln Asp Ile Arg Asn
545 550 555 560

Gly Asp Pro Leu Thr His Cys Ser Asp Leu His His Asp Asn His His
565 570 575

Gly His Ser Pro Glu Glu Arg Ile Ile Tyr Gly Val Glu Asn Ser Ser
580 585 590

Thr Phe Leu Glu Cys Ser Pro Lys Ser Gln Arg Ala Leu Val Tyr Trp
595 600 605

Gln Phe Gln Arg Arg Asn Glu Glu Arg Lys Glu Glu Ile Arg Val Asp
610 615 620

Asp His Ile Ile Arg Thr Asp Gln Gly Leu Leu Leu Arg Ser Leu Gln
625 630 635 640

Gln Lys Asp Ser Gly Asn Tyr Leu Cys His Ala Val Glu His Gly Phe
645 650 655

Ile Gln Thr Leu Leu Lys Val Thr Leu Glu Val Ile Asp Thr Glu His
660 665 670

Leu Glu Glu Leu Leu His Lys Asp Asp Asp Gly Asp Gly Ser Lys Thr
675 680 685

Lys Glu Met Ser Asn Ser Met Thr Pro Ser Gln Lys Val Trp Tyr Arg
690 695 700

Asp Phe Met Gln Leu Ile Asn His Pro Asn Leu Asn Thr Met Asp Glu
705 710 715 720

Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln Arg Arg Gln Arg
725 730 735

Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys His Leu Gln Glu
740 745 750

Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe Glu Arg Ala Pro
755 760 765

Arg Ser Val
770

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cccgccctcg ccctcaactgc tgactcctct tccagatcct ggggcagagt ccagggcagc 180
tcaaggctcc tccacacaca caccgcgtga accctgagca ccctgagctg ctgag atg 238
Met
1

ggg cg9 gcc ggg gct gcc gtc atc ccg ggc ctg gcc ctg ctc tgg 286
Gly Arg Ala Gly Ala Ala Val Ile Pro Gly Leu Ala Leu Leu Trp
5 10 15

gca gtg ggg ctg ggg agt gcc gcc ccc agc ccc cca cgc ctt cgg ctc 334
Ala Val Gly Leu Gly Ser Ala Ala Pro Ser Pro Pro Arg Leu Arg Leu
20 25 30

tcc ttc caa gag ctc cag gcc tgg cat ggt ctc cag act ttc agc ctg 382
Ser Phe Gln Glu Leu Gln Ala Trp His Gly Leu Gln Thr Phe Ser Leu
35 40 45

gag cga acc tgc tgc tac cag gcc ttg ctg gtc gat gag gag cgt gga 430
Glu Arg Thr Cys Cys Tyr Gln Ala Leu Leu Val Asp Glu Glu Arg Gly
50 55 60 65

cgc ctg ttt ggt gcc gag aac cat gtc gcc tcc ctc aac ctg gac 478
Arg Leu Phe Val Gly Ala Glu Asn His Val Ala Ser Leu Asn Leu Asp
70 75 80

aac atc agc aag cgg gcc aag aag ctg gcc tgg ccg gcc cct gtt gaa 526
Asn Ile Ser Lys Arg Ala Lys Lys Leu Ala Trp Pro Ala Pro Val Glu
85 90 95

tgg cga gag gag tgc aac tgg gca ggg aag gac att ggt act gag tgc 574
Trp Arg Glu Glu Cys Asn Trp Ala Gly Lys Asp Ile Gly Thr Glu Cys
100 105 110

atg aac ttc gtg aag ttg ctg cat gcc tac aac cgc acc cat ttg ctg 622
Met Asn Phe Val Lys Leu Leu His Ala Tyr Asn Arg Thr His Leu Leu
115 120 125

gcc tgt ggc acg gga gcc ttc cac cca acc tgt gcc ttt gtt gaa gtt 670
Ala Cys Gly Thr Gly Ala Phe His Pro Thr Cys Ala Phe Val Glu Val
130 135 140 145

ggc cac cgg gca gag gag ccc gtc ctc cgg ctg gac cca gga agg ata Gly His Arg Ala Glu Glu Pro Val Leu Arg Leu Asp Pro Gly Arg Ile 150 155 160	718
gag gat ggc aag ggg aag agt cct tat gac ccc agg cat cgg gct gcc Glu Asp Gly Lys Gly Lys Ser Pro Tyr Asp Pro Arg His Arg Ala Ala 165 170 175	766
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ctc cga aca gag cca cac gac tcc cgc tgg ctc aat gag ccc aag ttt Leu Arg Thr Glu Pro His Asp Ser Arg Trp Leu Asn Glu Pro Lys Phe 210 215 220 225	910
gtc aag gta ttt tgg atc ccg gag agc gag aac cca gac gac gac aaa Val Lys Val Phe Trp Ile Pro Glu Ser Glu Asn Pro Asp Asp Asp Lys 230 235 240	958
atc tac ttc ttc ttt cgt gag acg gcg gta gag gcg gcg ccg gca ctg Ile Tyr Phe Phe Arg Glu Thr Ala Val Glu Ala Ala Pro Ala Leu 245 250 255	1006
gga cgc ctg tcc gtg tcc cgc gtt ggc cag atc tgc cgg aac gac gtg Gly Arg Leu Ser Val Ser Arg Val Gly Gln Ile Cys Arg Asn Asp Val 260 265 270	1054
ggc ggc cag cgc agc ctg gtc aac aag tgg acg acg ttc ctg aag gcg Gly Gly Gln Arg Ser Leu Val Asn Lys Trp Thr Phe Leu Lys Ala 275 280 285	1102
cgg ctg gtg tgc tcg gtg ccc ggc gtc gag ggc gac acc cac ttc gat Arg Leu Val Cys Ser Val Pro Gly Val Glu Gly Asp Thr His Phe Asp 290 295 300 305	1150
cag ctc cag gat gtg ttt ctg ttg tcc ttc cgg cgg gac cac cgg acc ccg Gln Leu Gln Asp Val Phe Leu Leu Ser Ser Arg Asp His Arg Thr Pro 310 315 320	1198
ctg ctc tat gcc gtc ttc tcc acg tcc agc agc atc ttc cag ggc tct Leu Leu Tyr Ala Val Phe Ser Thr Ser Ser Ile Phe Gln Gly Ser 325 330 335	1246
gcg gtg tgc gtg tac agc atg aac gac gtg cgc cgg gcc ttc ttg gga Ala Val Cys Val Tyr Ser Met Asn Asp Val Arg Arg Ala Phe Leu Gly 340 345 350	1294
ccc ttt gca cac aag gag ggg ccc atg cac cag tgg gtg tca tac cag Pro Phe Ala His Lys Glu Gly Pro Met His Gln Trp Val Ser Tyr Gln 355 360 365	1342
ggc gtc ccc tac ccg cgg cca ggc atg tgc ccc agc aag acc ttt Gly Arg Val Pro Tyr Pro Arg Pro Gly Met Cys Pro Ser Lys Thr Phe 370 375 380 385	1390
ggc acc ttc agt tcc acc aag gac ttc cca gac gat gtc atc cag ttt Gly Thr Phe Ser Ser Thr Lys Asp Phe Pro Asp Asp Val Ile Gln Phe 390 395 400	1438

gct cgg aac cac ccc ctc atg tac aac tct gtc ctg ccc act ggg ggg Ala Arg Asn His Pro Leu Met Tyr Asn Ser Val Leu Pro Thr Gly Gly 405 410 415	1486
cgc cct ctt ttc cta caa gtt gga gcc aat tac acc ttc act caa att Arg Pro Leu Phe Leu Gln Val Gly Ala Asn Tyr Thr Phe Thr Gln Ile 420 425 430	1534
gcc gcg gac cgg gtt gca gcc gct gac gga cac tat gac gtc ctc ttc Ala Ala Asp Arg Val Ala Ala Asp Gly His Tyr Asp Val Leu Phe 435 440 445	1582
att ggc aca gac gtt ggc acg gtg ctg aag gtg atc tcg gtc ccc aag Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Ile Ser Val Pro Lys 450 455 460 465	1630
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ccc agt gcc aag agg cgg ttc cgg cgg caa gac gta agg aat ggc gac Pro Ser Ala Lys Arg Arg Phe Arg Arg Gln Asp Val Arg Asn Gly Asp 550 555 560	1918
ccc agc acg ttg tgc tcc gga gac tcg tct cgt ccc gcg ctg ctg gaa Pro Ser Thr Leu Cys Ser Gly Asp Ser Ser Arg Pro Ala Leu Leu Glu 565 570 575	1966
cac aag gtg ttc ggc gtg gag ggc agc agc gcc ttt ctg gag tgt gag His Lys Val Phe Gly Val Glu Gly Ser Ser Ala Phe Leu Glu Cys Glu 580 585 590	2014
ccc cgc tcg ctg cag gcg cgc gtg gag tgg act ttc cag cgc gca ggg Pro Arg Ser Leu Gln Ala Arg Val Glu Trp Thr Phe Gln Arg Ala Gly 595 600 605	2062
gtg aca gcc cac acc cag gtg ctg gca gag gag cgc acc gag cgc acc Val Thr Ala His Thr Gln Val Leu Ala Glu Glu Arg Thr Glu Arg Thr 610 615 620 625	2110
gcc cgg gga cta ctg ctg cgc agg ctg cgg cgc cgg gac tcg ggc gtg Ala Arg Gly Leu Leu Arg Arg Leu Arg Arg Arg Asp Ser Gly Val 630 635 640	2158
tac ttg tgc gcc gtc gag cag ggc ttt acg caa ccg ctg cgt cgc Tyr Leu Cys Ala Ala Val Glu Gln Gly Phe Thr Gln Pro Leu Arg Arg 645 650 655	2206

ctg tcg ctg cac gtg ttg agt gct acg cag gcc gaa cga ctg gcg cg	2254
Leu Ser Leu His Val Leu Ser Ala Thr Gln Ala Glu Arg Leu Ala Arg	
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gcc gag gag gct gcg ccc gcc gcg ccg ccg ggc ccc aaa ctc tgg tac	2302
Ala Glu Glu Ala Ala Pro Ala Ala Pro Pro Gly Pro Lys Leu Trp Tyr	
675 680 685	
cgg gac ttt ctg cag ctg gtg gag ccg ggc gga ggt ggc agc gcg aac	2350
Arg Asp Phe Leu Gln Leu Val Glu Pro Gly Gly Gly Ser Ala Asn	
690 695 700 705	
tcc ctg cgc atg tgc cgc ccg cag cct gcg ctg cag tca ctg ccc ctg	2398
Ser Leu Arg Met Cys Arg Pro Gln Pro Ala Leu Gln Ser Leu Pro Leu	
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Gl. Ser Arg Arg Lys Gly Arg Asn Arg Arg Thr His Ala Pro Glu Pro	
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Arg Ala Glu Arg Gly Pro Arg Ser Ala Thr His Trp	
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Leu Glu Arg Thr Cys Cys Tyr Gln Ala Leu Leu Val Asp Glu Glu Arg	
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Gly Arg Leu Phe Val Gly Ala Glu Asn His Val Ala Ser Leu Asn Leu
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Asp Asn Ile Ser Lys Arg Ala Lys Lys Leu Ala Trp Pro Ala Pro Val
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Glu Trp Arg Glu Glu Cys Asn Trp Ala Gly Lys Asp Ile Gly Thr Glu
100 105 110

Cys Met Asn Phe Val Lys Leu Leu His Ala Tyr Asn Arg Thr His Leu
115 120 125

Leu Ala Cys Gly Thr Gly Ala Phe His Pro Thr Cys Ala Phe Val Glu
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Val Gly His Arg Ala Glu Glu Pro Val Leu Arg Leu Asp Pro Gly Arg
145 150 155 160

Ile Glu Asp Gly Lys Gly Lys Ser Pro Tyr Asp Pro Arg His Arg Ala
165 170 175

Ala Ser Val Leu Val Gly Glu Glu Leu Tyr Ser Gly Val Ala Ala Asp
180 185 190

Leu Met Gly Arg Asp Phe Thr Ile Phe Arg Ser Leu Gly Gln Arg Pro
195 200 205

Ser Leu Arg Thr Glu Pro His Asp Ser Arg Trp Leu Asn Glu Pro Lys
210 215 220

Phe Val Lys Val Phe Trp Ile Pro Glu Ser Glu Asn Pro Asp Asp Asp
225 230 235 240

Lys Ile Tyr Phe Phe Arg Glu Thr Ala Val Glu Ala Ala Pro Ala
245 250 255

Leu Gly Arg Leu Ser Val Ser Arg Val Gly Gln Ile Cys Arg Asn Asp
260 265 270

Val Gly Gln Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys
275 280 285

Ala Arg Leu Val Cys Ser Val Pro Gly Val Glu Gly Asp Thr His Phe
290 295 300

Asp Gln Leu Gln Asp Val Phe Leu Leu Ser Ser Arg Asp His Arg Thr
305 310 315 320

Pro Leu Leu Tyr Ala Val Phe Ser Thr Ser Ser Ser Ile Phe Gln Gly
325 330 335

Ser Ala Val Cys Val Tyr Ser Met Asn Asp Val Arg Arg Ala Phe Leu
340 345 350

Gly Pro Phe Ala His Lys Glu Gly Pro Met His Gln Trp Val Ser Tyr
355 360 365

Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Met Cys Pro Ser Lys Thr
370 375 380

Phe Gly Thr Phe Ser Ser Thr Lys Asp Phe Pro Asp Asp Val Ile Gln
385 390 395 400

Phe Ala Arg Asn His Pro Leu Met Tyr Asn Ser Val Leu Pro Thr Gly
405 410 415

Gly Arg Pro Leu Phe Leu Gln Val Gly Ala Asn Tyr Thr Phe Thr Gln
420 425 430

Ile Ala Ala Asp Arg Val Ala Ala Asp Gly His Tyr Asp Val Leu
435 440 445

Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Ile Ser Val Pro
450 455 460

Lys Gly Ser Arg Pro Ser Ala Glu Gly Leu Leu Leu Glu Glu Leu His
465 470 475 480

Val Phe Glu Asp Ser Ala Ala Val Thr Ser Met Gln Ile Ser Ser Lys
485 490 495

Arg His Gln Leu Tyr Val Ala Ser Arg Ser Ala Val Ala Gln Ile Ala
500 505 510

Leu His Arg Cys Ala Ala His Gly Arg Val Cys Thr Glu Cys Cys Leu
515 520 525

Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Val Ala Cys Thr Arg Phe
530 535 540

Gln Pro Ser Ala Lys Arg Arg Phe Arg Arg Gln Asp Val Arg Asn Gly
545 550 555 560

Asp Pro Ser Thr Leu Cys Ser Gly Asp Ser Ser Arg Pro Ala Leu Leu
565 570 575

Glu His Lys Val Phe Gly Val Glu Gly Ser Ser Ala Phe Leu Glu Cys
580 585 590

Glu Pro Arg Ser Leu Gln Ala Arg Val Glu Trp Thr Phe Gln Arg Ala
595 600 605

Gly Val Thr Ala His Thr Gln Val Leu Ala Glu Glu Arg Thr Glu Arg
610 615 620

Thr Ala Arg Gly Leu Leu Leu Arg Arg Leu Arg Arg Asp Ser Gly
625 630 635 640

Val Tyr Leu Cys Ala Ala Val Glu Gln Gly Phe Thr Gln Pro Leu Arg
645 650 655

Arg Leu Ser Leu His Val Leu Ser Ala Thr Gln Ala Glu Arg Leu Ala
660 665 670

Arg Ala Glu Glu Ala Ala Pro Ala Ala Pro Pro Gly Pro Lys Leu Trp
675 680 685

Tyr Arg Asp Phe Leu Gln Leu Val Glu Pro Gly Gly Gly Ser Ala
690 695 700

Asn Ser Leu Arg Met Cys Arg Pro Gln Pro Ala Leu Gln Ser Leu Pro
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cgccgcgctg taatcgacca ccaagagcgc tcgccccgg cctccggcca cttccattc	300
actccgaggt gcttgattga gcgacgcgga gaagagctcc gggtgccgca gcaactgcagc	360
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atataactgc atatctgaag aa atg gca ttc cgg aca att tgc gtg ttg gtt Met Ala Phe Arg Thr Ile Cys Val Leu Val	592
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gca aga gtt tat tta aca ttt gat gaa ctt cga gaa acc aag acc tct Ala Arg Val Tyr Leu Thr Phe Asp Glu Leu Arg Glu Thr Lys Thr Ser	688
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gaa tac ttc agc ctt tcc cac cat cct tta gac tac agg att tta tta Glu Tyr Phe Ser Leu Ser His His Pro Leu Asp Tyr Arg Ile Leu Leu	736
45 50 55	
atg gat gaa gat cag gac cgg ata tat gtt gga agc aaa gat cac att Met Asp Glu Asp Gln Asp Arg Ile Tyr Val Gly Ser Lys Asp His Ile	784
60 65 70	
ctt tcc ctg aat att aac aat ata agt caa gaa gct ttg agt gtt ttc Leu Ser Leu Asn Ile Asn Asn Ile Ser Gln Glu Ala Leu Ser Val Phe	832
75 80 85 90	
tgg cca gca tct aca atc aaa gtt gaa gaa tgc aaa atg gct ggc aaa Trp Pro Ala Ser Thr Ile Lys Val Glu Glu Cys Lys Met Ala Gly Lys	880
95 100 105	
gat ccc aca cac ggc tgt ggg aac ttt gtc cgt gta att cag act ttc Asp Pro Thr His Gly Cys Gly Asn Phe Val Arg Val Ile Gln Thr Phe	928
110 115 120	
aat cgc aca cat ttg tat gtc tgt ggg agt ggc gct ttc agt cct gtc Asn Arg Thr His Leu Tyr Val Cys Gly Ser Gly Ala Phe Ser Pro Val	976
125 130 135	
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140 145 150	
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175 180 185	
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190 195 200	
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Thr Lys Arg Asn Ala Val Arg	Thr Asp Gln His Asn Ser Lys Trp Leu		
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agt gaa cct atg ttt gta gat gca cat gtc atc cca gat ggt act gat		1264	
Ser Glu Pro Met Phe Val Asp Ala His Val Ile Pro Asp Gly Thr Asp			
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Pro Asn Asp Ala Lys Val Tyr Phe Phe Lys Glu Lys Leu Thr Asp			
235	240	245	250
aat aac agg agc acg aaa cag att cat tcc atg att gct cga ata tgt		1360	
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cct aat gac act ggt gga ctg cgt agc ctt gtc aac aag tgg acc act		1408	
Pro Asn Asp Thr Gly Leu Arg Ser Leu Val Asn Lys Trp Thr Thr			
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Phe Leu Lys Ala Arg Leu Val Cys Ser Val Thr Asp Glu Asp Gly Pro			
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Glu Thr His Phe Asp Glu Leu Glu Asp Val Phe Leu Leu Glu Thr Asp			
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aac ccg agg aca aca cta gtg tat ggc att ttt aca aca tca agc tca		1552	
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Val Phe Lys Gly Ser Ala Val Cys Val Tyr His Leu Ser Asp Ile Gln			
335	340	345	
act gtg ttt aat ggg cct ttt gcc cac aaa gaa ggg ccc aat cat cag		1648	
Thr Val Phe Asn Gly Pro Phe Ala His Lys Glu Gly Pro Asn His Gln			
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Leu Ile Ser Tyr Gln Gly Arg Ile Pro Tyr Pro Arg Pro Gly Thr Cys			
365	370	375	
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Pro Gly Gly Ala Phe Thr Pro Asn Met Arg Thr Thr Lys Glu Phe Pro			
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gat gat gtt gtc act ttt att cgg aac cat cct ctc atg tac aat tcc		1792	
Asp Asp Val Val Thr Phe Ile Arg Asn His Pro Leu Met Tyr Asn Ser			
395	400	405	410
atc tac cca atc cac aaa agg cct ttg att gtt cgt att ggc act gac		1840	
Ile Tyr Pro Ile His Lys Arg Pro Leu Ile Val Arg Ile Gly Thr Asp			
415	420	425	
tac aag tac aca aag ata gct gtg gat cga gtg aac gct gct gat ggg		1888	
Tyr Lys Tyr Thr Lys Ile Ala Val Asp Arg Val Asn Ala Ala Asp Gly			
430	435	440	
aga tac cat gtc ctg ttt ctc gga aca gat cgg ggt act gtg caa aaa		1936	
Arg Tyr His Val Leu Phe Leu Gly Thr Asp Arg Gly Thr Val Gln Lys			
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cac tca gaa atg cag atg att aac caa tac tgc aaa gac act cgg cag His Ser Glu Met Gln Met Ile Asn Gln Tyr Cys Lys Asp Thr Arg Gln 700 705 710	2704

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gtgttatgg ccaatctatt ctcaaagtta aaagtaaaat tgttcagag tcacagttcc	4708
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His His Pro Leu Asp Tyr Arg Ile Leu Leu Met Asp Glu Asp Gln Asp
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Arg Ile Tyr Val Gly Ser Lys Asp His Ile Leu Ser Leu Asn Ile Asn
 65 70 75 80

Asn Ile Ser Gln Glu Ala Leu Ser Val Phe Trp Pro Ala Ser Thr Ile
 85 90 95

Lys Val Glu Glu Cys Lys Met Ala Gly Lys Asp Pro Thr His Gly Cys
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Gly Asn Phe Val Arg Val Ile Gln Thr Phe Asn Arg Thr His Leu Tyr

115

120

125

Val Cys Gly Ser Gly Ala Phe Ser Pro Val Cys Thr Tyr Leu Asn Arg
130 135 140

Gly Arg Arg Ser Glu Asp Gln Val Phe Met Ile Asp Ser Lys Cys Glu
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Ser Gly Lys Gly Arg Cys Ser Phe Asn Pro Asn Val Asn Thr Val Ser
165 170 175

Val Met Ile Asn Glu Glu Leu Phe Ser Gly Met Tyr Ile Asp Phe Met
180 185 190

Gly Thr Asp Ala Ala Ile Phe Arg Ser Leu Thr Lys Arg Asn Ala Val
195 200 205

Arg Thr Asp Gln His Asn Ser Lys Trp Leu Ser Glu Pro Met Phe Val
210 215 220

Asp Ala His Val Ile Pro Asp Gly Thr Asp Pro Asn Asp Ala Lys Val
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Tyr Phe Phe Phe Lys Glu Lys Leu Thr Asp Asn Asn Arg Ser Thr Lys
245 250 255

Gln Ile His Ser Met Ile Ala Arg Ile Cys Pro Asn Asp Thr Gly Gly
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Leu Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys Ala Arg Leu
275 280 285

Val Cys Ser Val Thr Asp Glu Asp Gly Pro Glu Thr His Phe Asp Glu
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Val Tyr Gly Ile Phe Thr Thr Ser Ser Ser Val Phe Lys Gly Ser Ala
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340 345 350

Phe Ala His Lys Glu Gly Pro Asn His Gln Leu Ile Ser Tyr Gln Gly
355 360 365

Arg Ile Pro Tyr Pro Arg Pro Gly Thr Cys Pro Gly Gly Ala Phe Thr
370 375 380

Pro Asn Met Arg Thr Thr Lys Glu Phe Pro Asp Asp Val Val Thr Phe
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Ile Arg Asn His Pro Leu Met Tyr Asn Ser Ile Tyr Pro Ile His Lys
405 410 415

Arg Pro Leu Ile Val Arg Ile Gly Thr Asp Tyr Lys Tyr Thr Lys Ile
420 425 430

Ala Val Asp Arg Val Asn Ala Ala Asp Gly Arg Tyr His Val Leu Phe
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465 470 475 480

Lys Asn His Ala Pro Ile Thr Thr Met Lys Ile Ser Ser Lys Lys Gln
485 490 495

Gln Leu Tyr Val Ser Ser Asn Glu Gly Val Ser Gln Val Ser Leu His
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580 585 590

Ala Pro Lys Ser Pro Gln Ala Ser Ile Lys Trp Leu Leu Gln Lys Asp
595 600 605

Lys Asp Arg Arg Lys Glu Val Lys Leu Asn Glu Arg Ile Ile Ala Thr
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Ser Gln Gly Leu Leu Ile Arg Ser Val Gln Gly Ser Asp Gln Gly Leu
625 630 635 640

Tyr His Cys Ile Ala Thr Glu Asn Ser Phe Lys Gln Thr Ile Ala Lys
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Ile Asn Phe Lys Val Leu Asp Ser Glu Met Val Ala Val Val Thr Asp
660 665 670

Lys Trp Ser Pro Trp Thr Trp Ala Ser Ser Val Arg Ala Leu Pro Phe
675 680 685

His Pro Lys Asp Ile Met Gly Ala Phe Ser His Ser Glu Met Gln Met
690 695 700

Ile Asn Gln Tyr Cys Lys Asp Thr Arg Gln Gln His Gln Gln Gly Asp
705 710 715 720

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725 730 735

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Met Ala Ser
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Ala Gly His Ile Ile Thr Leu Leu Leu Trp Gly Tyr Leu Leu Glu Leu
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tca cat aaa gag ctc ttg aat ctg aac aga aca tca ata ttt cat agc Ser His Lys Glu Leu Leu Asn Leu Asn Arg Thr Ser Ile Phe His Ser 40 45 50	619
cct ttt gga ttt ctt gat ctc cat aca atg ctg ctg gat gaa tat caa Pro Phe Gly Phe Leu Asp Leu His Thr Met Leu Leu Asp Glu Tyr Gln 55 60 65	667
gag agg ctc ttc gtg gga ggc agg gac ctt gta tat tcc ctc agc ttg Glu Arg Leu Phe Val Gly Gly Arg Asp Leu Val Tyr Ser Leu Ser Leu 70 75 80	715
gag aga atc agt gac ggc tat aaa gag ata cac tgg ccg agt aca gct Glu Arg Ile Ser Asp Gly Tyr Lys Glu Ile His Trp Pro Ser Thr Ala 85 90 95	763
cta aaa atg gaa gaa tgc ata atg aag gga aaa gat gcg ggt gaa tgt Leu Lys Met Glu Glu Cys Ile Met Lys Gly Lys Asp Ala Gly Glu Cys 100 105 110 115	811
gca aat tat gtt cgg gtt ttg cat cac tat aac agg aca cac ctt ctg Ala Asn Tyr Val Arg Val Leu His His Tyr Asn Arg Thr His Leu Leu 120 125 130	859
acc tgt ggt act gga gct ttt gat cca gtt tgt gcc ttc atc aga gtt Thr Cys Gly Thr Gly Ala Phe Asp Pro Val Cys Ala Phe Ile Arg Val 135 140 145	907
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gag aga gga agg ggc aga tgt cct ttt gac ccc agc tcc tcc ttc atc Glu Arg Gly Arg Cys Pro Phe Asp Pro Ser Ser Ser Phe Ile 165 170 175	1003
tcc act tta att ggt agt gaa ttg ttt gct gga ctc tac agt gac tac Ser Thr Leu Ile Gly Ser Glu Leu Phe Ala Gly Leu Tyr Ser Asp Tyr 180 185 190 195	1051
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cac gca att tac acc agg gtc ggg cga ctc tgt gtg aat gat gta gga	1291

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Gly Gln Arg Ile Leu Val Asn Lys Trp Ser Thr Phe Leu Lys Ala Arg			
280	285	290	
ctc gtt tgc tca gta cca gga atg aat gga att gac aca tat ttt gat			1387
Leu Val Cys Ser Val Pro Gly Met Asn Gly Ile Asp Thr Tyr Phe Asp			
295	300	305	
gaa tta gag gac gtt ttt ttg cta cct acc aga gat cat aag aat cca			1435
Glu Leu Glu Asp Val Phe Leu Leu Pro Thr Arg Asp His Lys Asn Pro			
310	315	320	
gtg ata ttt gga ctc ttt aac act acc agt aat att ttt cga ggg cat			1483
Val Ile Phe Gly Leu Phe Asn Thr Ser Asn Ile Phe Arg Gly His			
325	330	335	
gct ata tgt gtc tat cac atg tct agc att cgg gca gcc ttc aac gga			1531
Ala Ile Cys Val Tyr His Met Ser Ser Ile Arg Ala Ala Phe Asn Gly			
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cca tat gca cat aag gaa gga cct gaa tac cac tgg tca gtc tat gaa			1579
Pro Tyr Ala His Lys Glu Gly Pro Glu Tyr His Trp Ser Val Tyr Glu			
360	365	370	
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Gly Lys Val Pro Tyr Pro Arg Pro Gly Ser Cys Ala Ser Lys Val Asn			
375	380	385	
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390	395	400	
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Phe Ala Arg Ser His Pro Leu Met Tyr Gln Ala Ile Lys Pro Ala His			
405	410	415	
aaa aaa cca ata ttg gta aaa aca gat gga aaa tat aac ctg aaa caa			1771
Lys Lys Pro Ile Leu Val Lys Thr Asp Gly Lys Tyr Asn Leu Lys Gln			
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Ile Ala Val Asp Arg Val Glu Ala Glu Asp Gly Gln Tyr Asp Val Leu			
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Phe Ile Gly Thr Asp Asn Gly Ile Val Leu Lys Val Ile Thr Ile Tyr			
455	460	465	
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Asn Gln Glu Met Glu Ser Met Glu Glu Val Ile Leu Glu Glu Leu Gln			
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Ile Phe Lys Asp Pro Val Pro Ile Ile Ser Met Glu Ile Ser Ser Lys			
485	490	495	
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Arg Gln Gln Leu Tyr Ile Gly Ser Ala Ser Ala Val Ala Gln Val Arg			
500	505	510	515

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aca gat gac aga gtg gtt aag atg gac ott ggt tta ctc ttc cta agg Thr Asp Asp Arg Val Val Lys Met Asp Leu Gly Leu Leu Phe Leu Arg 630 635 640	2395
tta cac aaa tca gat gct ggg acc tat ttt tgc cag aca gta gag cat Leu His Lys Ser Asp Ala Gly Thr Tyr Phe Cys Gln Thr Val Glu His 645 650 655	2443
agc ttt gtc cat acg gtc cgt aaa atc acc ttg gag gta gtg gaa gag Ser Phe Val His Thr Val Arg Lys Ile Thr Leu Glu Val Val Glu Glu 660 665 670 675	2491
gag aaa gtc gag gat atg ttt aac aag gac gat gag gag gac agg cat Glu Lys Val Glu Asp Met Phe Asn Lys Asp Asp Glu Glu Asp Arg His 680 685 690	2539
cac agg atg cct tgt cct gct cag agt agc atc tcg cag gga gca aaa His Arg Met Pro Cys Pro Ala Gln Ser Ser Ile Ser Gln Gly Ala Lys 695 700 705	2587
cca tgg tac aag gaa ttc ttg cag ctg atc ggt tat agc aac ttc cag Pro Trp Tyr Lys Glu Phe Leu Gln Leu Ile Gly Tyr Ser Asn Phe Gln 710 715 720	2635
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aaa aag ctt aaa atg tca ccc tcc aag tgg aag tat gcc aac cct cag Lys Lys Leu Lys Met Ser Pro Ser Lys Trp Lys Tyr Ala Asn Pro Gln 740 745 750 755	2731
gaa aag aag ctc cgt tcc aaa cct gag cat tac cgc ctg ccc agg cac Glu Lys Lys Leu Arg Ser Lys Pro Glu His Tyr Arg Leu Pro Arg His 760 765 770	2779

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Thr Leu Asp Ser	
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35 40 45

Phe His Ser Pro Phe Gly Phe Leu Asp Leu His Thr Met Leu Leu Asp
50 55 60

Glu Tyr Gln Glu Arg Leu Phe Val Gly Gly Arg Asp Leu Val Tyr Ser
65 70 75 80

Leu Ser Leu Glu Arg Ile Ser Asp Gly Tyr Lys Glu Ile His Trp Pro
85 90 95

Ser Thr Ala Leu Lys Met Glu Glu Cys Ile Met Lys Gly Lys Asp Ala
100 105 110

Gly Glu Cys Ala Asn Tyr Val Arg Val Leu His His Tyr Asn Arg Thr
115 120 125

His Leu Leu Thr Cys Gly Thr Gly Ala Phe Asp Pro Val Cys Ala Phe
130 135 140

Ile Arg Val Gly Tyr His Leu Glu Asp Pro Leu Phe His Leu Glu Ser
145 150 155 160

Pro Arg Ser Glu Arg Gly Arg Gly Cys Pro Phe Asp Pro Ser Ser
165 170 175

Ser Phe Ile Ser Thr Leu Ile Gly Ser Glu Leu Phe Ala Gly Leu Tyr
180 185 190

Ser Asp Tyr Trp Ser Arg Asp Ala Ala Ile Phe Arg Ser Met Gly Arg
195 200 205

Leu Ala His Ile Arg Thr Glu His Asp Asp Glu Arg Leu Leu Lys Glu
210 215 220

Pro Lys Phe Val Gly Ser Tyr Met Ile Pro Asp Asn Glu Asp Arg Asp
225 230 235 240

Asp Asn Lys Val Tyr Phe Phe Thr Glu Lys Ala Leu Glu Ala Glu
245 250 255

Asn Asn Ala His Ala Ile Tyr Thr Arg Val Gly Arg Leu Cys Val Asn
260 265 270

Asp Val Gly Gly Gln Arg Ile Leu Val Asn Lys Trp Ser Thr Phe Leu
275 280 285

Lys Ala Arg Leu Val Cys Ser Val Pro Gly Met Asn Gly Ile Asp Thr
290 295 300

Tyr Phe Asp Glu Leu Glu Asp Val Phe Leu Leu Pro Thr Arg Asp His
305 310 315 320

Lys Asn Pro Val Ile Phe Gly Leu Phe Asn Thr Thr Ser Asn Ile Phe
325 330 335

Arg Gly His Ala Ile Cys Val Tyr His Met Ser Ser Ile Arg Ala Ala
340 345 350

Phe Asn Gly Pro Tyr Ala His Lys Glu Gly Pro Glu Tyr His Trp Ser
355 360 365

Val Tyr Glu Gly Lys Val Pro Tyr Pro Arg Pro Gly Ser Cys Ala Ser
370 375 380

Lys Val Asn Gly Gly Arg Tyr Gly Thr Thr Lys Asp Tyr Pro Asp Asp
385 390 395 400

Ala Ile Arg Phe Ala Arg Ser His Pro Leu Met Tyr Gln Ala Ile Lys
405 410 415

Pro Ala His Lys Lys Pro Ile Leu Val Lys Thr Asp Gly Lys Tyr Asn
420 425 430

Leu Lys Gln Ile Ala Val Asp Arg Val Glu Ala Glu Asp Gly Gln Tyr
435 440 445

Asp Val Leu Phe Ile Gly Thr Asp Asn Gly Ile Val Leu Lys Val Ile
450 455 460

Thr Ile Tyr Asn Gln Glu Met Glu Ser Met Glu Glu Val Ile Leu Glu
465 470 475 480

Glu Leu Gln Ile Phe Lys Asp Pro Val Pro Ile Ile Ser Met Glu Ile
485 490 495

Ser Ser Lys Arg Gln Gln Leu Tyr Ile Gly Ser Ala Ser Ala Val Ala
500 505 510

Gln Val Arg Phe His His Cys Asp Met Tyr Gly Ser Ala Cys Ala Asp
515 520 525

Cys Cys Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ile Ser Cys
530 535 540

Ser Arg Tyr Tyr Pro Thr Gly Thr His Ala Lys Arg Arg Phe Arg Arg
545 550 555 560

Gln Asp Val Arg His Gly Asn Ala Ala Gln Gln Cys Phe Gly Gln Gln
565 570 575

Phe Val Gly Asp Ala Leu Asp Lys Thr Glu Glu His Leu Ala Tyr Gly
580 585 590

Ile Glu Asn Asn Ser Thr Leu Leu Glu Cys Thr Pro Arg Ser Leu Gln
595 600 605

Ala Lys Val Ile Trp Phe Val Gln Lys Gly Arg Glu Thr Arg Lys Glu
610 615 620

Glu Val Lys Thr Asp Asp Arg Val Val Lys Met Asp Leu Gly Leu Leu
625 630 635 640

Phe Leu Arg Leu His Lys Ser Asp Ala Gly Thr Tyr Phe Cys Gln Thr
645 650 655

Val Glu His Ser Phe Val His Thr Val Arg Lys Ile Thr Leu Glu Val
660 665 670

Val Glu Glu Glu Lys Val Glu Asp Met Phe Asn Lys Asp Asp Glu Glu
675 680 685

Asp Arg His His Arg Met Pro Cys Pro Ala Gln Ser Ser Ile Ser Gln
690 695 700

Gly Ala Lys Pro Trp Tyr Lys Glu Phe Leu Gln Leu Ile Gly Tyr Ser
705 710 715 720

Asn Phe Gln Arg Val Glu Glu Tyr Cys Glu Lys Val Trp Cys Thr Asp
725 730 735

Arg Lys Arg Lys Lys Leu Lys Met Ser Pro Ser Lys Trp Lys Tyr Ala
740 745 750

Asn Pro Gln Glu Lys Lys Leu Arg Ser Lys Pro Glu His Tyr Arg Leu
755 760 765

Pro Arg His Thr Leu Asp Ser
770 775

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cccttaggccc ctccccaca atg ctt gtc gcc ggt ctt ctt ctc tgg gct tcc 111
Met Leu Val Ala Gly Leu Leu Leu Trp Ala Ser
1 5 10
cta ctg acc ggg gcc tgg cca tcc ttc ccc acc cag gac cac ctc ccg 159
Leu Leu Thr Gly Ala Trp Pro Ser Phe Pro Thr Gln Asp His Leu Pro
15 20 25
gcc acg ccc cgg gtc cgg ctc tca ttc aaa gag ctg aag gcc aca ggc 207
Ala Thr Pro Arg Val Arg Leu Ser Phe Lys Glu Leu Lys Ala Thr Gly
30 35 40
acc gcc cac ttc ttc aac ttc ctg ctc aac aca acc gac tac cga atc 255
Thr Ala His Phe Phe Asn Phe Leu Leu Asn Thr Asp Tyr Arg Ile
45 50 55
ttg ctc aag gac gag gac cac gac cgc atg tac gtg ggc agc aag gac 303
Leu Leu Lys Asp Glu Asp His Asp Arg Met Tyr Val Gly Ser Lys Asp
60 65 70 75
tac gtg ctg tcc ctg gac ctg cac gac atc aac cgc gag ccc ctc att 351
Tyr Val Leu Ser Leu Asp Leu His Asp Ile Asn Arg Glu Pro Leu Ile
80 85 90
ata cac tgg gca gcc tcc cca cag cgc atc gag gaa tgc gtg ctc tca 399
Ile His Trp Ala Ala Ser Pro Gln Arg Ile Glu Glu Cys Val Leu Ser
95 100 105
ggc aag gat gtc aac ggc gag tgt ggg aac ttc gtc agg ctc atc cag 447
Gly Lys Asp Val Asn Gly Glu Cys Gly Asn Phe Val Arg Leu Ile Gln
110 115 120
ccc tgg aac cga aca cac ctg tat gtg tgc ggg aca ggt gcc tac aac 495
Pro Trp Asn Arg Thr His Leu Tyr Val Cys Gly Thr Gly Ala Tyr Asn
125 130 135
ccc atg tgc acc tat gtg aac cgc gga cgc cgc gcc cag gcc aca cca 543
Pro Met Cys Thr Tyr Val Asn Arg Gly Arg Arg Ala Gln Ala Thr Pro
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tgg acc cag act cag gcg gtc aga ggc cgc ggc agc aga gcc acg gat Trp Thr Gln Thr Gln Ala Val Arg Gly Arg Gly Ser Arg Ala Thr Asp 160 165 170	591
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tac ctg gag cct gag cga ctc gag tca ggg aag ggc aag tgt cct tac Tyr Leu Glu Pro Glu Arg Leu Glu Ser Gly Lys Gly Lys Cys Pro Tyr 190 195 200	687
gat ccc aag ctg gac aca gca tcg gcc ctc atc aat gag gag ctc tat Asp Pro Lys Leu Asp Thr Ala Ser Ala Leu Ile Asn Glu Glu Leu Tyr 205 210 215	735
gct ggt gtg tac atc gat ttt atg ggc act gat gca gcc atc ttc cgc Ala Gly Val Tyr Ile Asp Phe Met Gly Thr Asp Ala Ala Ile Phe Arg 220 225 230 235	783
aca ctt gga aag cag aca gcc atg cgc acg gat cag tac aac tcc cgg Thr Leu Gly Lys Gln Thr Ala Met Arg Thr Asp Gln Tyr Asn Ser Arg 240 245 250	831
tgg ctg aac gac ccg tcg ttc atc cat gct gag ctc att cct gac agt Trp Leu Asn Asp Pro Ser Phe Ile His Ala Glu Leu Ile Pro Asp Ser 255 260 265	879
gcg gag cgc aat gat gat aag ctt tac ttc ttc cgt gag cgg tcg Ala Glu Arg Asn Asp Asp Lys Leu Tyr Phe Phe Arg Glu Arg Ser 270 275 280	927
gca gag gcg ccg cag agc ccc gcg gtg tac gcc cgc atc ggg cgc att Ala Glu Ala Pro Gln Ser Pro Ala Val Tyr Ala Arg Ile Gly Arg Ile 285 290 295	975
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aat gcc aac aag aat gcc gtg gag tct gtg cag tat ggc gtg gcc ggc Asn Ala Asn Lys Asn Ala Val Glu Ser Val Gln Tyr Gly Val Ala Gly 605 610 615	1935
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gca gag gac cgc ttc ctg cgc aca gag cag ggc ttg ttg ctc cgt gca Ala Glu Asp Arg Phe Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala 655 660 665	2079

ctg cag ctc agc gat cgt ggc ctc tac tcc tgc aca gcc act gag aac Leu Gln Leu Ser Asp Arg Gly Leu Tyr Ser Cys Thr Ala Thr Glu Asn 670 675 680	2127
aac ttt aag cac gtc gtc aca cga gtg cag ctg cat gta ctg ggc cg Asn Phe Lys His Val Val Thr Arg Val Gln Leu His Val Leu Gly Arg 685 690 695	2175
gac gcc gtc cat gct gcc ctc ttc cca cca ctg tcc atg agc gcc ccg Asp Ala Val His Ala Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro 700 705 710 715	2223
cca ccc cca ggc gca ggc ccc cca acg cct cct tac cag gag tta gcc Pro Pro Pro Gly Ala Gly Pro Pro Thr Pro Pro Tyr Gln Glu Leu Ala 720 725 730	2271
cag ctg ctg gcc cag cca gaa gtg ggc ctc atc cac cag tac tgc cag Gln Leu Leu Ala Gln Pro Glu Val Gly Leu Ile His Gln Tyr Cys Gln 735 740 745	2319
ggc tac tgg cgc cat gtg ccc ccc agc ccc agg gag gct cca ggg gca Gly Tyr Trp Arg His Val Pro Pro Ser Pro Arg Glu Ala Pro Gly Ala 750 755 760	2367
ccc cgg tct cct gag ccc cag gac cag aaa aag ccc cgg aac cgc ccg Pro Arg Ser Pro Glu Pro Gln Asp Gln Lys Lys Pro Arg Asn Arg Arg 765 770 775	2415
cac cac cct ccg gac aca tga ggccagctgc ctgtgcctgc catggccag His His Pro Pro Asp Thr 780 785	2466
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35 40 45

Asn Phe Leu Leu Asn Thr Thr Asp Tyr Arg Ile Leu Leu Lys Asp Glu

50

55

60

Asp His Asp Arg Met Tyr Val Gly Ser Lys Asp Tyr Val Leu Ser Leu
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Asp Leu His Asp Ile Asn Arg Glu Pro Leu Ile Ile His Trp Ala Ala
 85 90 95

Ser Pro Gln Arg Ile Glu Glu Cys Val Leu Ser Gly Lys Asp Val Asn
 100 105 110

Gly Glu Cys Gly Asn Phe Val Arg Leu Ile Gln Pro Trp Asn Arg Thr
 115 120 125

His Leu Tyr Val Cys Gly Thr Gly Ala Tyr Asn Pro Met Cys Thr Tyr
 130 135 140

Val Asn Arg Gly Arg Arg Ala Gln Ala Thr Pro Trp Thr Gln Thr Gln
 145 150 155 160

Ala Val Arg Gly Arg Gly Ser Arg Ala Thr Asp Gly Ala Leu Arg Pro
 165 170 175

Met Pro Thr Ala Pro Arg Gln Asp Tyr Ile Phe Tyr Leu Glu Pro Glu
 180 185 190

Arg Leu Glu Ser Gly Lys Gly Lys Cys Pro Tyr Asp Pro Lys Leu Asp
 195 200 205

Thr Ala Ser Ala Leu Ile Asn Glu Glu Leu Tyr Ala Gly Val Tyr Ile
 210 215 220

Asp Phe Met Gly Thr Asp Ala Ala Ile Phe Arg Thr Leu Gly Lys Gln
 225 230 235 240

Thr Ala Met Arg Thr Asp Gln Tyr Asn Ser Arg Trp Leu Asn Asp Pro
 245 250 255

Ser Phe Ile His Ala Glu Leu Ile Pro Asp Ser Ala Glu Arg Asn Asp
 260 265 270

Asp Lys Leu Tyr Phe Phe Arg Glu Arg Ser Ala Glu Ala Pro Gln
 275 280 285

Ser Pro Ala Val Tyr Ala Arg Ile Gly Arg Ile Cys Leu Asn Asp Asp
 290 295 300

Gly Gly His Cys Cys Leu Val Asn Lys Trp Ser Thr Phe Leu Lys Ala
305 310 315 320

Arg Leu Val Cys Ser Val Pro Gly Glu Asp Gly Ile Glu Thr His Phe
325 330 335

Asp Glu Leu Gln Asp Val Phe Val Gln Gln Thr Gln Asp Val Arg Asn
340 345 350

Pro Val Ile Tyr Ala Val Phe Thr Ser Ser Gly Ser Val Phe Arg Gly
355 360 365

Ser Ala Val Cys Val Tyr Ser Met Ala Asp Ile Arg Met Val Phe Asn
370 375 380

Gly Pro Phe Ala His Lys Glu Gly Pro Asn Tyr Gln Trp Met Pro Phe
385 390 395 400

Ser Gly Lys Met Pro Tyr Pro Arg Pro Gly Thr Cys Pro Gly Gly Thr
405 410 415

Phe Thr Pro Ser Met Lys Ser Thr Lys Asp Tyr Pro Asp Glu Val Ile
420 425 430

Asn Phe Met Arg Ser His Pro Leu Met Tyr Gln Ala Val Tyr Pro Leu
435 440 445

Gln Arg Arg Pro Leu Val Val Arg Thr Gly Ala Pro Tyr Arg Leu Thr
450 455 460

Thr Ile Ala Val Asp Gln Val Asp Ala Gly Asp Gly Arg Tyr Glu Val
465 470 475 480

Leu Phe Leu Gly Thr Asp Arg Gly Thr Val Gln Lys Val Ile Val Leu
485 490 495

Pro Lys Asp Asp Gln Glu Met Glu Glu Leu Met Leu Glu Glu Val Glu
500 505 510

Val Phe Lys Asp Pro Ala Pro Val Lys Thr Met Thr Ile Ser Ser Lys
515 520 525

Arg Gln Gln Leu Tyr Val Ala Ser Ala Val Gly Val Thr His Leu Ser
530 535 540

Leu His Arg Cys Gln Ala Tyr Gly Ala Ala Cys Ala Asp Cys Cys Leu
545 550 555 560

Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Gln Ala Cys Ser Arg Tyr
565 570 575

Thr Ala Ser Ser Lys Arg Arg Ser Arg Arg Gln Asp Val Arg His Gly
580 585 590

Asn Pro Ile Arg Gln Cys Arg Gly Phe Asn Ser Asn Ala Asn Lys Asn
595 600 605

Ala Val Glu Ser Val Gln Tyr Gly Val Ala Gly Ser Ala Ala Phe Leu
610 615 620

Glu Cys Gln Pro Arg Ser Pro Gln Ala Thr Val Lys Trp Leu Phe Gln
625 630 635 640

Arg Asp Pro Gly Asp Arg Arg Arg Glu Ile Arg Ala Glu Asp Arg Phe
645 650 655

Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala Leu Gln Leu Ser Asp
660 665 670

Arg Gly Leu Tyr Ser Cys Thr Ala Thr Glu Asn Asn Phe Lys His Val
675 680 685

Val Thr Arg Val Gln Leu His Val Leu Gly Arg Asp Ala Val His Ala
690 695 700

Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro Pro Pro Pro Gly Ala
705 710 715 720

Gly Pro Pro Thr Pro Pro Tyr Gln Glu Leu Ala Gln Leu Leu Ala Gln
725 730 735

Pro Glu Val Gly Leu Ile His Gln Tyr Cys Gln Gly Tyr Trp Arg His
740 745 750

Val Pro Pro Ser Pro Arg Glu Ala Pro Gly Ala Pro Arg Ser Pro Glu
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Pro Gln Asp Gln Lys Lys Pro Arg Asn Arg Arg His His Pro Pro Asp
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Thr
785

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52

gcc ttg ctg ctc tac ctc cac cat gcc aag tgg tcc cag gct gca ccc
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15 20 25

100

atg gca gaa gga gga ggg cag aat cat cac gaa gtg gtg aag ttc atg
Met Ala Glu Gly Gly Gln Asn His His Glu Val Val Lys Phe Met
30 35 40

148

gat gtc tat cag cgc agc tac tgc cat cca atc gag acc ctg gtg gac
Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp
45 50 55 60

196

atc ttc cag gag tac cct gat gag atc gag tac atc ttc aag cca tcc
Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser
65 70 75

244

tgt gtg ccc ctg atg cga tgc ggg ggc tgc tgc aat gac gag ggc ctg
Cys Val Pro Leu Met Arg Cys Gly Cys Cys Asn Asp Glu Gly Leu
80 85 90

292

gag tgt gtg ccc act gag gag tcc aac atc acc atg cag att atg cgg
Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg
95 100 105

340

atc aaa cct cac caa ggc cag cac ata gga gag atg agc ttc cta cag
Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln
110 115 120

388

cac aac aaa tgt gaa tgc aga cca aag aaa gat aga gca aga caa gaa
His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu
125 130 135 140

436

aat ccc tgt ggg cct tgc tca gag cgg aga aag cat ttg ttt gta caa
Asn Pro Cys Gly Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln
145 150 155

484

gat ccg cag acg tgt aaa tgt tcc tgc aaa aac aca gac tcg cgt tgc
Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys
160 165 170

532

aag gcg agg cag ctt gag tta aac gaa cgt act tgc aga tgt gac aag
Lys Ala Arg Gln Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys
175 180 185

580

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Pro Arg Arg	
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35 40 45	
Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu	
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Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser Cys Val Pro Leu	
65 70 75 80	
Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys Val Pro	
85 90 95	
Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His	
100 105 110	
Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys	
115 120 125	
Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu Asn Pro Cys Gly	
130 135 140	
Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr	
145 150 155 160	
Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln	
165 170 175	

Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg
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Leu Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His
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cag agg aaa gtg gtg tca tgg ata gat gtg tat act cgc gct acc tgc 145
Gln Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys
35 . . . 40 45

cag ccc cgg gag gtg gtg ccc ttg act gtg gag ctc atg ggc acc 193
Gln Pro Arg Glu Val Val Val Pro Leu Thr Val Glu Leu Met Gly Thr
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gtg gcc aaa cag ctg gtg ccc agc tgc gtg act gtg cag cgc tgt ggt 241
Val Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly
65 . . . 70 75

ggc tgc tgc cct gac gat ggc ctg gag tgt gtg ccc act ggg cag cac 289
Gly Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His
80 . . . 85 90 95

caa gtc cgg atg cag atc ctc atg atc cgg tac ccg agc agt cag ctg 337
Gln Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu
100 . . . 105 110

ggg gag atg tcc ctg gaa gaa cac agc cag tgt gaa tgc aga cct aaa 385
Gly Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys
115 . . . 120 125

aaa aag gac agt gct gtg aag cca gac agg gct gcc act ccc cac cac 433
Lys Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His
130 . . . 135 140

cgt ccc cag ccc cgt tct gtt ccg ggc tgg gac tct gcc ccc gga gca 481
Arg Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala
145 . . . 150 155

ccc tcc cca gct gac atc acc cat ccc act cca gcc cca ggc ccc tct 529
Pro Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser
160 . . . 165 170 175

gcc cac gct gca ccc agc acc acc agc gcc ctg acc ccc gga cct gcc 577
Ala His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala
180 . . . 185 190

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Ala	Pro	Ala	Gln	Ala	Pro	Val	Ser	Gln	Pro	Asp	Ala	Pro	Gly	His	Gln	
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Arg	Lys	Val	Val	Ser	Trp	Ile	Asp	Val	Tyr	Thr	Arg	Ala	Thr	Cys	Gln	
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Pro	Arg	Glu	Val	Val	Val	Pro	Leu	Thr	Val	Glu	Leu	Met	Gly	Thr	Val	
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Ala	Lys	Gln	Leu	Val	Pro	Ser	Cys	Val	Thr	Val	Gln	Arg	Cys	Gly	Gly	
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Cys	Cys	Pro	Asp	Asp	Gly	Leu	Glu	Cys	Val	Pro	Thr	Gly	Gln	His	Gln	
						85			90			95				
Val	Arg	Met	Gln	Ile	Leu	Met	Ile	Arg	Tyr	Pro	Ser	Ser	Gln	Leu	Gly	
						100			105			110				
Glu	Met	Ser	Leu	Glu	Glu	His	Ser	Gln	Cys	Glu	Cys	Arg	Pro	Lys	Lys	
						115			120			125				
Lys	Asp	Ser	Ala	Val	Lys	Pro	Asp	Arg	Ala	Ala	Thr	Pro	His	His	Arg	
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Pro	Gln	Pro	Arg	Ser	Val	Pro	Gly	Trp	Asp	Ser	Ala	Pro	Gly	Ala	Pro	
						145			150			155			160	
Ser	Pro	Ala	Asp	Ile	Thr	His	Pro	Thr	Pro	Ala	Pro	Gly	Pro	Ser	Ala	
						165			170			175				
His	Ala	Ala	Pro	Ser	Thr	Thr	Ser	Ala	Leu	Thr	Pro	Gly	Pro	Ala	Ala	

180

185

190

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 ggaacgcgga gccccggacc cgctcccgcc gcctccggct cgcccagggg gggtcgcccgg 240
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 Met His
 1
 ttg ctg ggc ttc ttc tct gtg gcg tgg tct ctg ctc gcc gct gcg ctg 405
 Leu Leu Gly Phe Phe Ser Val Ala Cys Ser Leu Leu Ala Ala Ala Leu
 5 10 15
 ctc ccg ggt cct cgc gag gcg ccc gcc gcc gcc gcc ttc gag tcc 453
 Leu Pro Gly Pro Arg Glu Ala Pro Ala Ala Ala Ala Ala Phe Glu Ser
 20 25 30
 gga ctc gac ctc tcg gac gcg gag ccc gac gcg ggc gag gcc acg gct 501
 Gly Leu Asp Leu Ser Asp Ala Glu Pro Asp Ala Gly Glu Ala Thr Ala
 35 40 45 50
 tat gca agc aaa gat ctg gag gag cag tta cgg tct gtg tcc agt gta 549
 Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser Ser Val
 55 60 65
 gat gaa ctc atg act gta ctc tac cca gaa tat tgg aaa atg tac aag 597
 Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met Tyr Lys
 70 75 80
 tgt cag cta agg aaa gga ggc tgg caa cat aac aga gaa cag gcc aac 645
 Cys Gln Leu Arg Lys Gly Gly Trp Gln His Asn Arg Glu Gln Ala Asn
 85 90 95
 ctc aac tca agg aca gaa gag act ata aaa ttt gct gca gca cat tat 693
 Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala His Tyr
 100 105 110
 aat aca gag atc ttg aaa agt att gat aat gag tgg aga aag act caa 741
 Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys Thr Gln

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gcg aca aac acc ttc ttt aaa cct cca tgt gtg tcc gtc tac aga tgt Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr Arg Cys				837
150		155		160
ggg ggt tgc tgc aat agt gag ggg ctg cag tgc atg aac acc agc acg Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr Ser Thr				885
165		170		175
agc tac ctc agc aag acg tta ttt gaa att aca gtg cct ctc tct caa Ser Tyr Leu Ser Lys Thr Leu Phe Glu Ile Thr Val Pro Leu Ser Gln				933
180		185		190
ggc ccc aaa cca gta aca atc agt ttt gcc aat cac act tcc tgc cga Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser Cys Arg				981
195		200		205
				210
tgc atg tct aaa ctg gat gtt tac aga caa gtt cat tcc att att aga Cys Met Ser Lys Leu Asp Val Tyr Arg Gln Val His Ser Ile Ile Arg				1029
215		220		225
cgt tcc ctg cca gca aca cta cca cag tgt cag gca gcg aac aag acc Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn Lys Thr				1077
230		235		240
tgc ccc acc aat tac atg tgg aat aat cac atc tgc aga tgc ctg gct Cys Pro Thr Asn Tyr Met Trp Asn Asn His Ile Cys Arg Cys Leu Ala				1125
245		250		255
cag gaa gat ttt atg ttt tcc tcg gat gct gga gat gac tca aca gat Gln Glu Asp Phe Met Phe Ser Ser Asp Ala Gly Asp Asp Ser Thr Asp				1173
260		265		270
gga ttc cat gac atc tgt gga cca aac aag gag ctg gat gaa gag acc Gly Phe His Asp Ile Cys Gly Pro Asn Lys Glu Leu Asp Glu Glu Thr				1221
275		280		285
				290
tgt cag tgt gtc aga gcg ggg ctt cgg cct gcc agc tgt gga ccc Cys Gln Cys Val Cys Arg Ala Gly Leu Arg Pro Ala Ser Cys Gly Pro				1269
295		300		305
cac aaa gaa cta gac aga aac tca tgc cag tgt gtc tgt aaa aac aaa His Lys Glu Leu Asp Arg Asn Ser Cys Gln Cys Val Cys Lys Asn Lys				1317
310		315		320
ctc ttc ccc agc caa tgt ggg gcc aac cga gaa ttt gat gaa aac aca Leu Phe Pro Ser Gln Cys Gly Ala Asn Arg Glu Phe Asp Glu Asn Thr				1365
325		330		335
tgc cag tgt gta tgt aaa aga acc tgc ccc aga aat caa ccc cta aat Cys Gln Cys Val Cys Lys Arg Thr Cys Pro Arg Asn Gln Pro Leu Asn				1413
340		345		350
cct gga aaa tgt gcc tgt gaa tgt aca gaa agt cca cag aaa tgc ttg Pro Gly Lys Cys Ala Cys Glu Cys Thr Glu Ser Pro Gln Lys Cys Leu				1461
355		360		365
				370

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cca tgt acg aac cgc cag aag gct tgt gag cca gga ttt tca tat agt Pro Cys Thr Asn Arg Gln Lys Ala Cys Glu Pro Gly Phe Ser Tyr Ser 390 395 400	1557
gaa gaa gtg tgt cgt tgt gtc cct tca tat tgg aaa aga cca caa atg Glu Glu Val Cys Arg Cys Val Pro Ser Tyr Trp Lys Arg Pro Gln Met 405 410 415	1605
agc taa gattgtactg tttccagtt catcgattt ctattatgga aaactgtgtt Ser	1661
gccacagtag aactgtctgt gaacagagag acccttgtgg gtccatgcta acaaagacaa aagtctgtct ttcctgaacc atgtggataa ctttacagaa atggactgga gctcatctgc	1721 1781
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Glu Ser Gly Leu Asp Leu Ser Asp Ala Glu Pro Asp Ala Gly Glu Ala
 35 40 45

Thr Ala Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser
 50 55 60

Ser Val Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met
 65 70 75 80

Tyr Lys Cys Gln Leu Arg Lys Gly Gly Trp Gln His Asn Arg Glu Gln
 85 90 95

Ala Asn Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala
 100 105 110

His Tyr Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys
115 120 125

Thr Gln Cys Met Pro Arg Glu Val Cys Ile Asp Val Gly Lys Glu Phe
130 135 140

Gly Val Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr
145 150 155 160

Arg Cys Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr
165 170 175

Ser Thr Ser Tyr Leu Ser Lys Thr Leu Phe Glu Ile Thr Val Pro Leu
180 185 190

Ser Gln Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser
195 200 205

Cys Arg Cys Met Ser Lys Leu Asp Val Tyr Arg Gln Val His Ser Ile
210 215 220

Ile Arg Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn
225 230 235 240

Lys Thr Cys Pro Thr Asn Tyr Met Trp Asn Asn His Ile Cys Arg Cys
245 250 255

Leu Ala Gln Glu Asp Phe Met Phe Ser Ser Asp Ala Gly Asp Asp Ser
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Thr Asp Gly Phe His Asp Ile Cys Gly Pro Asn Lys Glu Leu Asp Glu
275 280 285

Glu Thr Cys Gln Cys Val Cys Arg Ala Gly Leu Arg Pro Ala Ser Cys
290 295 300

Gly Pro His Lys Glu Leu Asp Arg Asn Ser Cys Gln Cys Val Cys Lys
305 310 315 320

Asn Lys Leu Phe Pro Ser Gln Cys Gly Ala Asn Arg Glu Phe Asp Glu
325 330 335

Asn Thr Cys Gln Cys Val Cys Lys Arg Thr Cys Pro Arg Asn Gln Pro
340 345 350

Leu Asn Pro Gly Lys Cys Ala Cys Glu Cys Thr Glu Ser Pro Gln Lys
355 360 365

Cys Leu Leu Lys Gly Lys Lys Phe His His Gln Thr Cys Ser Cys Tyr
370 375 380

Arg Arg Pro Cys Thr Asn Arg Gln Lys Ala Cys Glu Pro Gly Phe Ser
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Gln Met Ser

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tgaagtttg aggttcaaa ctttccttct ggagaatgcc tttgaaaca attttctcta 360
gctgcctgat gtcaactgct tagtaatcag tggatattga aatattcaaa atg tac 416
Met Tyr
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Arg Glu Trp Val Val Val Asn Val Phe Met Met Leu Tyr Val Gln Leu
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Val Gln Gly Ser Ser Asn Glu His Gly Pro Val Lys Arg Ser Ser Gln
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tcc aca ttg gaa cga tct gaa cag cag atc agg gct gct tct agt ttg 560
Ser Thr Leu Glu Arg Ser Glu Gln Gln Ile Arg Ala Ala Ser Ser Leu
35 40 45 50

gag gaa cta ctt cga att act cac tct gag gac tgg aag ctg tgg aga 608
Glu Glu Leu Leu Arg Ile Thr His Ser Glu Asp Trp Lys Leu Trp Arg
55 60 65

tgc agg ctg agg ctc aaa agt ttt acc agt atg gac tct cgc tca gca 656
Cys Arg Leu Arg Leu Lys Ser Phe Thr Ser Met Asp Ser Arg Ser Ala
70 75 80

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Ser His Arg Ser Thr Arg Phe Ala Ala Thr Phe Tyr Asp Ile Glu Thr
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aat gaa gag agc ctt atc tgt atg aac acc agc acc tcg tac att tcc Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr Ile Ser 150 155 160	896
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ttt gag tgc aaa gaa agt ctg gag acc tgc tgc cag aag cac aag cta Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His Lys Leu 295 300 305	1328
ttt cac cca gac acc tgc agc tgt gag gac aga tgc ccc ttt cat acc Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe His Thr 310 315 320	1376
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cca aag gag aaa agg gct gcc cag ggg ccc cac agc cga aag aat cct Pro Lys Glu Lys Arg Ala Ala Gln Gly Pro His Ser Arg Lys Asn Pro	1472

340

345

350

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tgattcgat gatcagttact gactttctga ttactgtcca gcttatagtc ttccagttta	1945
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<210> 26

<211> 354

<212> PRT

<213> Homo sapiens

<400> 26

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Ser Gln Ser Thr Leu Glu Arg Ser Glu Gln Gln Ile Arg Ala Ala Ser		
35	40	45

Ser Leu Glu Glu Leu Leu Arg Ile Thr His Ser Glu Asp Trp Lys Leu		
50	55	60

Trp Arg Cys Arg Leu Arg Leu Lys Ser Phe Thr Ser Met Asp Ser Arg			
65	70	75	80

Ser Ala Ser His Arg Ser Thr Arg Phe Ala Ala Thr Phe Tyr Asp Ile		
85	90	95

Glu Thr Leu Lys Val Ile Asp Glu Glu Trp Gln Arg Thr Gln Cys Ser		
100	105	110

Pro Arg Glu Thr Cys Val Glu Val Ala Ser Glu Leu Gly Lys Ser Thr		
115	120	125

Asn Thr Phe Phe Lys Pro Pro Cys Val Asn Val Phe Arg Cys Gly Gly	
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130

135

140

Cys Cys Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr
145 150 155 160

Ile Ser Lys Gln Leu Phe Glu Ile Ser Val Pro Leu Thr Ser Val Pro
165 170 175

Glu Leu Val Pro Val Lys Val Ala Asn His Thr Gly Cys Lys Cys Leu
180 185 190

Pro Thr Ala Pro Arg His Pro Tyr Ser Ile Ile Arg Arg Ser Ile Gln
195 200 205

Ile Pro Glu Glu Asp Arg Cys Ser His Ser Lys Lys Leu Cys Pro Ile
210 215 220

Asp Met Leu Trp Asp Ser Asn Lys Cys Lys Cys Val Leu Gln Glu Glu
225 230 235 240

Asn Pro Leu Ala Gly Thr Glu Asp His Ser His Leu Gln Glu Pro Ala
245 250 255

Leu Cys Gly Pro His Met Met Phe Asp Glu Asp Arg Cys Glu Cys Val
260 265 270

Cys Lys Thr Pro Cys Pro Lys Asp Leu Ile Gln His Pro Lys Asn Cys
275 280 285

Ser Cys Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His
290 295 300

Lys Leu Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe
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His Thr Arg Pro Cys Ala Ser Gly Lys Thr Ala Cys Ala Lys His Cys
325 330 335

Arg Phe Pro Lys Glu Lys Arg Ala Ala Gln Gly Pro His Ser Arg Lys
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Asn Pro

<210> 27
<211> 1645
<212> DNA
<213> Homo sapiens

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tggttcggga cgtctgagaa g atg ccg gtc atg agg ctg ttc cct tgc ttc	351	
Met Pro Val Met Arg Leu Phe Pro Cys Phe		
1 5 10		
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Leu Gln Leu Leu Ala Gly Leu Ala Leu Pro Ala Val Pro Pro Gln Gln		
15 20 25		
tgg gcc ttg tct gct ggg aac ggc tcg tca gag gtg gaa gtg gta ccc	447	
Trp Ala Leu Ser Ala Gly Asn Gly Ser Ser Glu Val Glu Val Val Pro		
30 35 40		
ttc cag gaa gtg tgg ggc cgc agc tac tgc cgg gcg ctg gag agg ctg	495	
Phe Gln Glu Val Trp Gly Arg Ser Tyr Cys Arg Ala Leu Glu Arg Leu		
45 50 55		
gtg gac gtc gtg tcc gag tac ccc agc gag gtg gag cac atg ttc agc	543	
Val Asp Val Val Ser Glu Tyr Pro Ser Glu Val Glu His Met Phe Ser		
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cca tcc tgt gtc tcc ctg ctg cgc tgc acc ggc tgc tgc ggc gat gag	591	
Pro Ser Cys Val Ser Leu Leu Arg Cys Thr Gly Cys Cys Gly Asp Glu		
75 80 85 90		
aat ctg cac tgt gtg ccg gtg gag acg gcc aat gtc acc atg cag ctc	639	
Asn Leu His Cys Val Pro Val Glu Thr Ala Asn Val Thr Met Gln Leu		
95 100 105		
cta aag atc cgt tct ggg gac cgg ccc tcc tac gtg gag ctg acg ttc	687	
Leu Lys Ile Arg Ser Gly Asp Arg Pro Ser Tyr Val Glu Leu Thr Phe		
110 115 120		
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Ser Gln His Val Arg Cys Glu Cys Arg Pro Leu Arg Glu Lys Met Lys		
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Pro Glu Arg Cys Gly Asp Ala Val Pro Arg Arg		
140 145		
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cctgctggta cctgcctctt atttattac caactgtttc cctgctgaat gcctcgctcc	901	
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<210> 28

<211> 149

<212> PRT

<213> Homo sapiens

<400> 28

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Asn	Gly	Ser	Ser	Glu	Val	Glu	Val	Val	Pro	Phe	Gln	Glu	Val	Trp	Gly
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Arg	Ser	Tyr	Cys	Arg	Ala	Leu	Glu	Arg	Leu	Val	Asp	Val	Val	Ser	Glu
					50			55			60				

Tyr	Pro	Ser	Glu	Val	Glu	His	Met	Phe	Ser	Pro	Ser	Cys	Val	Ser	Leu
					65			70			75			80	

Leu	Arg	Cys	Thr	Gly	Cys	Gly	Asp	Glu	Asn	Leu	His	Cys	Val	Pro
					85			90			95			

Val	Glu	Thr	Ala	Asn	Val	Thr	Met	Gln	Leu	Leu	Lys	Ile	Arg	Ser	Gly
					100			105			110				

Asp	Arg	Pro	Ser	Tyr	Val	Glu	Leu	Thr	Phe	Ser	Gln	His	Val	Arg	Cys
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Glu Cys Arg Pro Leu Arg Glu Lys Met Lys Pro Glu Arg Cys Gly Asp

130

135

140

Ala Val Pro Arg Arg
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<210> 29
<211> 4230
<212> DNA
<213> Homo sapiens

<220>
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<222> (1)..(4065)

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Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro Arg Leu
20 25 30
agc ata caa aaa gac ata ctt aca att aag gct aat aca act ctt caa 144
Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr Leu Gln
35 40 45
att act tgc agg gga cag agg gac ttg gac tgg ctt tgg ccc aat aat 192
Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro Asn Asn
50 55 60
cag agt ggc agt gag caa agg gtg gag gtg act gag tgc agc gat ggc 240
Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser Asp Gly
65 70 75 80
ctc ttc tgt aag aca ctc aca att cca aaa gtg atc gga aat gac act 288
Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn Asp Thr
85 90 95
gga gcc tac aag tgc ttc tac cgg gaa act gac ttg gcc tcg gtc att 336
Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile
100 105 110
tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct gtt agt 384
Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser
115 120 125
gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa act gtg 432
Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val
130 135 140
gtg att cca tgt ctc ggg tcc att tca aat ctc aac gtg tca ctt tgt 480
Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys
145 150 155 160
gca aga tac cca gaa aag aga ttt gtt cct gat ggt aac aga att tcc 528
Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser
165 170 175
tgg gac agc aag aag ggc ttt act att ccc agc tac atg atc agc tat 576
Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile Ser Tyr

180	185	190	
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tct att atg tac ata gtt gtc gtt gta ggg tat agg att tat gat gtg Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr Asp Val 210			672
gtt ctg agt ccg tct cat gga att gaa cta tct gtt gga gaa aag ctt Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu Lys Leu 225			720
gtc tta aat tgt aca gca aga act gaa cta aat gtg ggg att gac ttc Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe 245			768
aac tgg gaa tac cct tct tcg aag cat cag cat aag aaa ctt gta aac Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu Val Asn 260			816
cga gac cta aaa acc cag tct ggg agt gag atg aag aaa ttt ttg agc Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe Leu Ser 275			864
acc tta act ata gat ggt gta acc cgg agt gac caa gga ttg tac acc Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu Tyr Thr 290			912
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agg gtc cat gaa aaa cct ttt gtt gct ttt gga agt ggc atg gaa tct Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met Glu Ser 325			1008
ctg gtg gaa gcc acg gtg ggg gag cgt gtc aga atc cct gcg aag tac Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala Lys Tyr 340			1056
ctt ggt tac cca ccc cca gaa ata aaa tgg tat aaa aat gga ata ccc Leu Gly Tyr Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly Ile Pro 355			1104
ctt gag tcc aat cac aca att aaa gcg ggg cat gta ctg acg att atg Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr Ile Met 370			1152
gaa gtg agt gaa aga gac aca gga aat tac act gtc atc ctt acc aat Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu Thr Asn 385			1200
ccc att tca aag gag aag cag agc cat gtg gtc tct ctg gtt gtg tat Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val Val Tyr 405			1248
gtc cca ccc cag att ggt gag aaa tct cta atc tct cct gtg gat tcc Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val Asp Ser 420			1296
425			430

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cct ccc ccg cat cac atc cac tgg tat tgg cag ttg gag gaa gag tgc Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu Glu Cys 450 455 460	1392
gcc aac gag ccc agc caa gct gtc tca gtg aca aac cca tac cct tgt Ala Asn Glu Pro Ser Gln Ala Val Ser Val Thr Asn Pro Tyr Pro Cys 465 470 475 480	1440
gaa gaa tgg aga agt gtg gag gac ttc cag gga gga aat aaa att gaa Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys Ile Glu 485 490 495	1488
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gag cag gag agc gtg tct ttg tgg tgc act gca gac aga tct acg ttt Glu Gln Glu Ser Val Leu Trp Cys Thr Ala Asp Arg Ser Thr Phe 565 570 575	1728
gag aac ctc aca tgg tac aag ctt ggc cca cag cct ctg cca atc cat Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro Ile His 580 585 590	1776
gtg gga gag ttg ccc aca cct gtt tgc aag aac ttg gat act ctt ttg Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr Leu Trp 595 600 605	1824
aaa ttg aat gcc acc atg ttc tct aat agc aca aat gac att ttg atc Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile Leu Ile 610 615 620	1872
atg gag ctt aag aat gca tcc ttg cag gac caa gga gac tat gtc tgc Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr Val Cys 625 630 635 640	1920
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ctc aca gtc cta gag cgt gtg gca ccc acg atc aca gga aac ctg gag Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn Leu Glu 660 665 670	2016
aat cag acg aca agt att ggg gaa agc atc gaa gtc tca tgc acg gca Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys Thr Ala 675 680 685	2064

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ctt gta gaa gac tca ggc att gta ttg aag gat ggg aac cgg aac ctc Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg Asn Leu 705 710 715 720	2160
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gca tgc agt gtt ctt ggc tgt gca aaa gtg gag gca ttt ttc ata ata Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe Ile Ile 740 745 750	2256
gaa ggt gcc cag gaa aag acg aac ttg gaa atc att att cta gta ggc Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu Ile Ile Ile Leu Val Gly 755 760 765	2304
acg acg gtg att gcc atg ttc ttc tgg cta ctt ctt gtc atc atc cta. Thr Thr Val Ile Ala Met Phe Phe Trp Leu Leu Leu Val Ile Ile Leu 770 775 780	2352
ggg acc gtt aag cgg gcc aat gga ggg gaa ctg aag aca ggc tac ttg Gly Thr Val Lys Arg Ala Asn Gly Glu Leu Lys Thr Gly Tyr Leu 785 790 795 800	2400
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aag aga aat gaa ttt gtc ccc tac aag acc aaa ggg gca cga ttc cgt Lys Arg Asn Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg Phe Arg 930 935 940	2832

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Leu	Asp	Ser	Ile	Thr	Ser	Ser	Gln	Ser	Ser	Ala	Ser	Ser	Gly	Phe	Val	
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gag	gag	aag	tcc	ctc	agt	gat	gta	gaa	gaa	gag	gaa	gct	cct	gaa	gat	2976
Glu	Glu	Lys	Ser	Leu	Ser	Asp	Val	Glu	Glu	Glu	Glu	Ala	Pro	Glu	Asp	
					980			985						990		
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Leu	Tyr	Lys	Asp	Phe	Leu	Thr	Leu	Glu	His	Leu	Ile	Cys	Tyr	Ser	Phe	
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caa	gtg	gct	aag	ggc	atg	gag	ttc	ttg	gca	tcg	cga	aag	tgt	atc	3069	
Gln	Val	Ala	Lys	Gly	Met	Glu	Phe	Leu	Ala	Ser	Arg	Lys	Cys	Ile		
					1010			1015				1020				
cac	agg	gac	ctg	gcg	gca	cga	aat	atc	ctc	tta	tcg	gag	aag	aac	3114	
His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	Ile	Leu	Leu	Ser	Glu	Lys	Asn		
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Asp	Pro	Asp	Tyr	Val	Arg	Lys	Gly	Asp	Ala	Arg	Leu	Pro	Leu	Lys		
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Trp	Met	Ala	Pro	Glu	Thr	Ile	Phe	Asp	Arg	Val	Tyr	Thr	Ile	Gln		
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Leu	Gly	Ala	Ser	Pro	Tyr	Pro	Gly	Val	Lys	Ile	Asp	Glu	Glu	Phe		
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Cys	Arg	Arg	Leu	Lys	Glu	Gly	Thr	Arg	Met	Arg	Ala	Pro	Asp	Tyr		
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Thr	Thr	Pro	Glu	Met	Tyr	Gln	Thr	Met	Leu	Asp	Cys	Trp	His	Gly		
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Glu	Pro	Ser	Gln	Arg	Pro	Thr	Phe	Ser	Glu	Leu	Val	Glu	His	Leu		
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gga	aat	ctc	ttg	caa	gct	aat	gct	cag	cag	gat	ggc	aaa	gac	tac	3519	
Gly	Asn	Leu	Leu	Gln	Ala	Asn	Ala	Gln	Gln	Asp	Gly	Lys	Asp	Tyr		
					1160			1165				1170				
att	gtt	ctt	ccg	ata	tca	gag	act	ttg	agc	atg	gaa	gag	gat	tct	3564	
Ile	Val	Leu	Pro	Ile	Ser	Glu	Thr	Leu	Ser	Met	Glu	Glu	Asp	Ser		
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Gly Leu Ser Leu Pro Thr Ser	Pro Val Ser Cys Met	Glu Glu Glu	
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Glu Val Cys Asp Pro Lys Phe	His Tyr Asp Asn Thr	Ala Gly Ile	
1205	1210	1215	
agt cag tat ctg cag aac agt	aag cga aag agc cg	cct gtg agt	3699
Ser Gln Tyr Leu Gln Asn Ser	Lys Arg Lys Ser Arg	Pro Val Ser	
1220	1225	1230	
gta aaa aca ttt gaa gat atc	ccg tta gaa gaa cca	gaa gta aaa	3744
Val Lys Thr Phe Glu Asp Ile	Pro Leu Glu Glu Pro	Glu Val Lys	
1235	1240	1245	
gta atc cca gat gac aac cag	acg gac agt ggt atg	gtt ctt gcc	3789
Val Ile Pro Asp Asp Asn Gln	Thr Asp Ser Gly Met	Val Leu Ala	
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Ser Glu Glu Leu Lys Thr Leu	Glu Asp Arg Thr Lys	Leu Ser Pro	
1265	1270	1275	
tct ttt ggt gga atg gtg ccc	agc aaa agc agg gag	tct gtg gca	3879
Ser Phe Gly Gly Met Val Pro	Ser Lys Ser Arg Glu	Ser Val Ala	
1280	1285	1290	
tct gaa ggc tca aac cag aca	agc ggc tac cag tcc	gga tat cac	3924
Ser Glu Gly Ser Asn Gln Thr	Ser Gly Tyr Gln Ser	Gly Tyr His	
1295	1300	1305	
tcc gat gac aca gac acc acc	gtg tac tcc agt gag	gaa gca gaa	3969
Ser Asp Asp Thr Asp Thr Thr	Val Tyr Ser Ser Glu	Glu Ala Glu	
1310	1315	1320	
ctt tta aag ctg ata gag att	gga gtg caa acc ggt	agc aca gcc	4014
Leu Leu Lys Leu Ile Glu Ile	Gly Val Gln Thr Gly	Ser Thr Ala	
1325	1330	1335	
cag att ctc cag cct gac acg	ggg acc aca ctg agc	tct cct cct	4059
Gln Ile Leu Gln Pro Asp Thr	Gly Thr Thr Leu Ser	Ser Pro Pro	
1340	1345	1350	
gtt taa aaggaagcat ccacacccca actcccgac atcacatgag aggtctgctc			4115
Val			
agattttgaa gtgttgttct ttccaccagc aggaagtagc cgcatggat tttcatttcg			4175
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Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro Asn Asn
50 55 60

Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser Asp Gly
65 70 75 80

Leu Phe Cys Iys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn Asp Thr
85 90 95

Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile
100 105 110

Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser
115 120 125

Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val
130 135 140

Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys
145 150 155 160

Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser
165 170 175

Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile Ser Tyr
180 185 190

Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser Tyr Gln
195 200 205

Ser Ile Met Tyr Ile Val Val Val Gly Tyr Arg Ile Tyr Asp Val
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Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu Lys Leu
225 230 235 240

Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe
245 250 255

Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu Val Asn
260 265 270

Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe Leu Ser
275 280 285

Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu Tyr Thr
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Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr Phe Val
305 310 315 320

Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met Glu Ser
325 330 335

Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala Lys Tyr
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Leu Gly Tyr Pro Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly Ile Pro
355 360 365

Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr Ile Met
370 375 380

Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu Thr Asn
385 390 395 400

Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val Val Tyr
405 410 415

Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val Asp Ser
420 425 430

Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr Ala Ile
435 440 445

Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu Cys
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Ala Asn Glu Pro Ser Gln Ala Val Ser Val Thr Asn Pro Tyr Pro Cys
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Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys Ile Glu
485 490 495

Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys Thr Val
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Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr Lys Cys
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Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser Phe His
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Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln Pro Thr
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Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser Thr Phe
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Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro Ile His
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Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr Leu Trp
595 600 605

Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile Leu Ile
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Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr Val Cys
625 630 635 640

Leu Ala Gln Asp Arg Lys Thr Lys Arg His Cys Val Val Arg Gln
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Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn Leu Glu
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Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys Thr Ala
675 680 685

Ser Gly Asn Pro Pro Gln Ile Met Trp Phe Lys Asp Asn Glu Thr
690 695 700

Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg Asn Leu
705 710 715 720

Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr Cys Gln
725 730 735

Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe Ile Ile
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Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu Ile Ile Ile Leu Val Gly
755 760 765

Thr Thr Val Ile Ala Met Phe Phe Trp Leu Leu Leu Val Ile Ile Leu
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Gly Thr Val Lys Arg Ala Asn Gly Gly Glu Leu Lys Thr Gly Tyr Tyr Leu
785 790 795 800

Ser Ile Val Met Asp Pro Asp Glu Leu Pro Leu Asp Glu His Cys Glu
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Arg Leu Pro Tyr Asp Ala Ser Lys Trp Glu Phe Pro Arg Asp Arg Leu
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Asn Leu Gly Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Glu Ile Glu
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Ala Asp Ala Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr Val Ala
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Val Lys Met Leu Lys Glu Gly Ala Thr His Ser Glu His Arg Ala Leu
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Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val
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Val Asn Leu Leu Gly Ala Cys Thr Lys Pro Gly Gly Pro Leu Met Val
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Ile Val Glu Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu Arg Ser
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Gln Gly Lys Asp Tyr Val Gly Ala Ile Pro Val Asp Leu Lys Arg Arg
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Leu Asp Ser Ile Thr Ser Ser Gln Ser Ser Ala Ser Ser Gly Phe Val
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Leu Tyr Lys Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr Ser Phe
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Gln Val Ala Lys Gly Met Glu Phe Leu Ala Ser Arg Lys Cys Ile
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His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Ser Glu Lys Asn
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Trp Met Ala Pro Glu Thr Ile Phe Asp Arg Val Tyr Thr Ile Gln
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Leu Gly Ala Ser Pro Tyr Pro Gly Val Lys Ile Asp Glu Glu Phe
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Cys Arg Arg Leu Lys Glu Gly Thr Arg Met Arg Ala Pro Asp Tyr
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Thr Thr Pro Glu Met Tyr Gln Thr Met Leu Asp Cys Trp His Gly
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Glu Pro Ser Gln Arg Pro Thr Phe Ser Glu Leu Val Glu His Leu
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Gly Asn Leu Leu Gln Ala Asn Ala Gln Gln Asp Gly Lys Asp Tyr
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Leu Leu Lys Leu Ile Glu Ile Gly Val Gln Thr Gly Ser Thr Ala
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Trp Leu Cys Leu Gly Leu Leu Asp Gly Leu Val Ser Gly Tyr Ser Met
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Thr Pro Pro Thr Leu Asn Ile Thr Glu Glu Ser His Val Ile Asp Thr
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Gly Asp Ser Leu Ser Ile Ser Cys Arg Gly Gln His Pro Leu Glu Trp
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Ala Trp Pro Gly Ala Gln Glu Ala Pro Ala Thr Gly Asp Lys Asp Ser
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Glu Asp Thr Gly Val Val Arg Asp Cys Glu Gly Thr Asp Ala Arg Pro
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Tyr Cys Lys Val Leu Leu His Glu Val His Ala Asn Asp Thr Gly
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545																
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Leu	Arg	Trp	Tyr	Arg	Leu	Asn	Leu	Ser	Thr	Leu	His	Asp	Ala	His	Gly	
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610																

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gct gac gct gag gac agc ccg cca agc ctg cag cgc cac agc ctg gcc Ala Asp Ala Glu Asp Ser Pro Pro Ser Leu Gln Arg His Ser Leu Ala 1215 1220 1225	3700
gcc agg tat tac aac tgg gtg tcc ttt ccc ggg tgc ctg gcc aga ggg Ala Arg Tyr Tyr Asn Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly 1230 1235 1240	3748
gct gag acc cgt ggt tcc tcc agg atg aag aca ttt gag gaa ttc ccc Ala Glu Thr Arg Gly Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro 1245 1250 1255	3796
atg acc cca acg acc tac aaa ggc tct gtg gac aac cag aca gac agt Met Thr Pro Thr Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser 1260 1265 1270 1275	3844
ggg atg gtg ctg gcc tcg gag gag ttt gag cag ata gag agc agg cat Gly Met Val Leu Ala Ser Glu Glu Phe Glu Gln Ile Glu Ser Arg His 1280 1285 1290	3892
aga caa gaa agc ggc ttc agg tagctgaagc agagagagag aaggcagcat Arg Gln Glu Ser Gly Phe Arg 1295	3943
acgtcagcat tttcttctct gcacttataa gaaagatcaa agactttaag actttcgcta 4003 tttcttctac tgctatctac tacaaaacttc aaagaggaac caggaggaca agaggagcat 4063 gaaagtggac aaggagtgtg accactgaag caccacaggg aagggttag gcctccggat 4123 gactgcgggc aggcctggat aatatccagc ctccccacaag aagctggtgg agcagagtgt 4183 tccctgactc ct 4195	

<210> 32
 <211> 1298
 <212> PRT
 <213> Homo sapiens

<400> 32

Met Gln Arg Gly Ala Ala Leu Cys Leu Arg Leu Trp Leu Cys Leu Gly

1 5 10 15

Leu Leu Asp Gly Leu Val Ser Gly Tyr Ser Met Thr Pro Pro Thr Leu
20 25 30

Asn Ile Thr Glu Glu Ser His Val Ile Asp Thr Gly Asp Ser Leu Ser
35 40 45

Ile Ser Cys Arg Gly Gln His Pro Leu Glu Trp Ala Trp Pro Gly Ala
50 55 60

Gln Glu Ala Pro Ala Thr Gly Asp Lys Asp Ser Glu Asp Thr Gly Val
65 70 75 80

Val Arg Asp Cys Glu Gly Thr Asp Ala Arg Pro Tyr Cys Lys Val Leu
85 90 95

Leu Leu His Glu Val His Ala Asn Asp Thr Gly Ser Tyr Val Cys Tyr
100 105 110

Tyr Lys Tyr Ile Lys Ala Arg Ile Glu Gly Thr Thr Ala Ala Ser Ser
115 120 125

Tyr Val Phe Val Arg Asp Phe Glu Gln Pro Phe Ile Asn Lys Pro Asp
130 135 140

Thr Leu Leu Val Asn Arg Lys Asp Ala Met Trp Val Pro Cys Leu Val
145 150 155 160

Ser Ile Pro Gly Leu Asn Val Thr Leu Arg Ser Gln Ser Ser Val Leu
165 170 175

Trp Pro Asp Gly Gln Glu Val Val Trp Asp Asp Arg Arg Gly Met Leu
180 185 190

Val Ser Thr Pro Leu Leu His Asp Ala Leu Tyr Leu Gln Cys Glu Thr
195 200 205

Thr Trp Gly Asp Gln Asp Phe Leu Ser Asn Pro Phe Leu Val His Ile
210 215 220

Thr Gly Asn Glu Leu Tyr Asp Ile Gln Leu Leu Pro Arg Lys Ser Leu
225 230 235 240

Glu Leu Leu Val Gly Glu Lys Leu Val Leu Asn Cys Thr Val Trp Ala
245 250 255

Glu Phe Asn Ser Gly Val Thr Phe Asp Trp Asp Tyr Pro Gly Lys Gln
260 265 270

Ala Glu Arg Gly Lys Trp Val Pro Glu Arg Arg Ser Gln Gln Thr His
275 280 285

Thr Glu Leu Ser Ser Ile Leu Thr Ile His Asn Val Ser Gln His Asp
290 295 300

Leu Gly Ser Tyr Val Cys Lys Ala Asn Asn Gly Ile Gln Arg Phe Arg
305 310 315 320

Glu Ser Thr Glu Val Ile Val His Glu Asn Pro Phe Ile Ser Val Glu
325 330 335

Trp Leu Lys Gly Pro Ile Leu Glu Ala Thr Ala Gly Asp Glu Leu Val
340 345 350

Lys Leu Pro Val Lys Leu Ala Ala Tyr Pro Pro Pro Glu Phe Gln Trp
355 360 365

Tyr Lys Asp Gly Lys Ala Leu Ser Gly Arg His Ser Pro His Ala Leu
370 375 380

Val Leu Lys Glu Val Thr Glu Ala Ser Thr Gly Thr Tyr Thr Leu Ala
385 390 395 400

Leu Trp Asn Ser Ala Ala Gly Ile Arg Arg Asn Ile Ser Leu Glu Leu
405 410 415

Val Val Asn Val Pro Pro Gln Ile His Glu Lys Glu Ala Ser Ser Pro
420 425 430

Ser Ile Tyr Ser Arg His Ser Arg Gln Ala Leu Thr Cys Thr Ala Tyr
435 440 445

Gly Val Pro Leu Pro Leu Ser Ile Gln Trp His Trp Arg Pro Trp Thr
450 455 460

Pro Cys Lys Met Phe Ala Gln Arg Ser Leu Arg Arg Arg Gln Gln Gln
465 470 475 480

Asp Leu Met Pro Gln Cys Arg Asp Trp Arg Ala Val Thr Thr Gln Asp
485 490 495

Ala Val Asn Pro Ile Glu Ser Leu Asp Thr Trp Thr Glu Phe Val Glu
500 505 510

Gly Lys Asn Lys Thr Val Ser Lys Leu Val Ile Gln Asn Ala Asn Val
515 520 525

Ser Ala Met Tyr Lys Cys Val Val Ser Asn Lys Val Gly Gln Asp Glu
530 535 540

Arg Leu Ile Tyr Phe Tyr Val Thr Thr Ile Pro Asp Gly Phe Thr Ile
545 550 555 560

Glu Ser Lys Pro Ser Glu Glu Leu Leu Glu Gly Gln Pro Val Leu Leu
565 570 575

Ser Cys Gln Ala Asp Ser Tyr Lys Tyr Glu His Leu Arg Trp Tyr Arg
580 585 590

Leu Asn Leu Ser Thr Leu His Asp Ala His Gly Asn Pro Leu Leu Leu
595 600 605

Asp Cys Lys Asn Val His Leu Phe Ala Thr Pro Leu Ala Ala Ser Leu
610 615 620

Glu Glu Val Ala Pro Gly Ala Arg His Ala Thr Leu Ser Leu Ser Ile
625 630 635 640

Pro Arg Val Ala Pro Glu His Glu Gly His Tyr Val Cys Glu Val Gln
645 650 655

Asp Arg Arg Ser His Asp Lys His Cys His Lys Lys Tyr Leu Ser Val
660 665 670

Gln Ala Leu Glu Ala Pro Arg Leu Thr Gln Asn Leu Thr Asp Leu Leu
675 680 685

Val Asn Val Ser Asp Ser Leu Glu Met Gln Cys Leu Val Ala Gly Ala
690 695 700

His Ala Pro Ser Ile Val Trp Tyr Lys Asp Glu Arg Leu Leu Glu Glu
705 710 715 720

Lys Ser Gly Val Asp Leu Ala Asp Ser Asn Gln Lys Leu Ser Ile Gln
725 730 735

Arg Val Arg Glu Glu Asp Ala Gly Arg Tyr Leu Cys Ser Val Cys Asn
740 745 750

Ala Lys Gly Cys Val Asn Ser Ser Ala Ser Val Ala Val Glu Gly Ser
755 760 765

Glu Asp Lys Gly Ser Met Glu Ile Val Ile Leu Val Gly Thr Gly Val
770 775 780

Ile Ala Val Phe Phe Trp Val Leu Leu Leu Ile Phe Cys Asn Met
785 790 795 800

Arg Arg Pro Ala His Ala Asp Ile Lys Thr Gly Tyr Leu Ser Ile Ile
805 810 815

Met Asp Pro Gly Glu Val Pro Leu Glu Glu Gln Cys Glu Tyr Leu Ser
820 825 830

Tyr Asp Ala Ser Gln Trp Glu Phe Pro Arg Glu Arg Leu His Leu Gly
835 840 845

Arg Val Leu Gly Tyr Gly Ala Phe Gly Lys Val Val Glu Ala Ser Ala
850 855 860

Phe Gly Ile His Lys Gly Ser Ser Cys Asp Thr Val Ala Val Lys Met
865 870 875 880

Leu Lys Glu Gly Ala Thr Ala Ser Glu His Arg Ala Leu Met Ser Glu
885 890 895

Leu Lys Ile Leu Ile His Ile Gly Asn His Leu Asn Val Val Asn Leu
900 905 910

Leu Gly Ala Cys Thr Lys Pro Gln Gly Pro Leu Met Val Ile Val Glu
915 920 925

Phe Cys Lys Tyr Gly Asn Leu Ser Asn Phe Leu Arg Ala Lys Arg Asp
930 935 940

Ala Phe Ser Pro Cys Ala Glu Lys Ser Pro Glu Gln Arg Gly Arg Phe
945 950 955 960

Arg Ala Met Val Glu Leu Ala Arg Leu Asp Arg Arg Arg Pro Gly Ser
965 970 975

Ser Asp Arg Val Leu Phe Ala Arg Phe Ser Lys Thr Glu Gly Gly Ala
980 985 990

Arg Arg Ala Ser Pro Asp Gln Glu Ala Glu Asp Leu Trp Leu Ser Pro
995 1000 1005

Leu Thr Met Glu Asp Leu Val Cys Tyr Ser Phe Gln Val Ala Arg Gly
1010 1015 1020

Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His Arg Asp Leu Ala Ala
1025 1030 1035 1040

Arg Asn Ile Leu Leu Ser Glu Ser Asp Val Val Lys Ile Cys Asp Phe
1045 1050 1055

Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp Tyr Val Arg Lys Gly
1060 1065 1070

Ser Ala Arg Leu Pro Leu Lys Trp Met Ala Pro Glu Ser Ile Phe Asp
1075 1080 1085

Lys Val Tyr Thr Thr Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu
1090 1095 1100

Trp Glu Ile Phe Ser Leu Gly Ala Ser Pro Tyr Pro Gly Val Gln Ile
1105 1110 1115 1120

Asn Glu Glu Phe Cys Gln Arg Leu Arg Asp Gly Thr Arg Met Arg Ala
1125 1130 1135

Pro Glu Leu Ala Thr Pro Ala Ile Arg Arg Ile Met Leu Asn Cys Trp
1140 1145 1150

Ser Gly Asp Pro Lys Ala Arg Pro Ala Phe Ser Glu Leu Val Glu Ile
1155 1160 1165

Leu Gly Asp Leu Leu Gln Gly Arg Gly Leu Gln Glu Glu Glu Val
1170 1175 1180

Cys Met Ala Pro Arg Ser Ser Gln Ser Ser Glu Glu Gly Ser Phe Ser
1185 1190 1195 1200

Gln Val Ser Thr Met Ala Leu His Ile Ala Gln Ala Asp Ala Glu Asp
1205 1210 1215

Ser Pro Pro Ser Leu Gln Arg His Ser Leu Ala Ala Arg Tyr Tyr Asn
1220 1225 1230

Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly Ala Glu Thr Arg Gly
1235 1240 1245

Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro Met Thr Pro Thr Thr
1250 1255 1260

Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser Gly Met Val Leu Ala

1265

1270

1275

1280

Ser Glu Glu Phe Glu Gln Ile Glu Ser Arg His Arg Gln Glu Ser Gly
1285 1290 1295

Phe Arg

<210> 33
<211> 14
<212> PRT
<213> Homo sapiens

<400> 33

Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu Asp Ser Thr
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<210> 34
<211> 18
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 34
tccggtttcc tgtgaggc

18

<210> 35
<211> 18
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 35
aagttgggta acgccagg

18

<210> 36
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 36
tgacctcgcc cccgt

15

<210> 37
<211> 3088
<212> DNA
<213> Homo sapiens

<400> 37

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tcccttgc	gctcataaag	tccgagtgcg	gcatcttca	agatatgtct	gaaatatcac	1980
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tcatgtttt	ttatacccg	tatcccagct	ccatatgtct	gaagacctac	ttctccgacg	2100
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gtatggagg	catggatatg	ttatgaaatc	agctggtaat	tcctcctcat	cacgtttctc	2640
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aatgttggcg	tgtgtaaagt	ctctattagc	aatgaaggga	atttgttaac	gatgcattca	2820
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ctctacagac	agtgtatgt	ctcttgcattc	tactgctaag	aaggctctgaa	aatttaatga	2940
aaccacttca	tacatthaag	tattttgttt	ggttgaact	caatcagtag	cttttcctta	3000
catgtttaaa	aataattcca	atgacagatg	agcagctcac	ttttccaaag	tacccaaaaa	3060
ggccaaat	aaaaaaaat	aaaaaaa	aaaaaaa			3088

<210> 38
 <211> 737
 <212> PRT
 <213> Homo sapiens

<400> 38

Met Pro Asp His Asp Ser Thr Ala Leu Leu Ser Arg Gln Thr Lys Arg
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Arg Arg Val Asp Ile Gly Val Lys Arg Thr Val Gly Thr Ala Ser Ala
 20 25 30

Phe Phe Ala Lys Ala Arg Ala Thr Phe Phe Ser Ala Met Asn Pro Gln
 35 40 45

Gly Ser Glu Gln Asp Val Glu Tyr Ser Val Val Gln His Ala Asp Gly
 50 55 60

Glu Lys Ser Asn Val Leu Arg Lys Leu Leu Lys Arg Ala Asn Ser Tyr
65 70 75 80

Glu Asp Ala Met Met Pro Phe Pro Gly Ala Thr Ile Ile Ser Gln Leu
85 90 95

Leu Lys Asn Asn Met Asn Lys Asn Gly Gly Thr Glu Pro Ser Phe Gln
100 105 110

Ala Ser Gly Leu Ser Ser Thr Gly Ser Glu Val His Gln Glu Asp Ile
115 120 125

Cys Ser Asn Ser Ser Arg Asp Ser Pro Pro Glu Cys Leu Ser Pro Phe
130 135 140

Gly Arg Pro Thr Met Ser Gln Phe Asp Met Asp Arg Leu Cys Asp Glu
145 150 155 160

His Leu Arg Ala Lys Arg Ala Arg Val Glu Asn Ile Ile Arg Gly Met
165 170 175

Ser His Ser Pro Ser Val Ala Leu Arg Gly Asn Glu Asn Glu Arg Glu
180 185 190

Met Ala Pro Gln Ser Val Ser Pro Arg Glu Ser Tyr Arg Glu Asn Lys
195 200 205

Arg Lys Gln Lys Leu Pro Gln Gln Gln Gln Ser Phe Gln Gln Leu
210 215 220

Val Ser Ala Arg Lys Glu Gln Lys Arg Glu Glu Arg Arg Gln Leu Lys
225 230 235 240

Gln Gln Leu Glu Asp Met Gln Lys Gln Leu Arg Gln Leu Gln Glu Lys
245 250 255

Phe Tyr Gln Ile Tyr Asp Ser Thr Asp Ser Glu Asn Asp Glu Asp Gly
260 265 270

Asn Leu Ser Glu Asp Ser Met Arg Ser Glu Ile Leu Asp Ala Arg Ala
275 280 285

Gln Asp Ser Val Gly Arg Ser Asp Asn Glu Met Cys Glu Leu Asp Pro
290 295 300

Gly Gln Phe Ile Asp Arg Ala Arg Ala Leu Ile Arg Glu Gln Glu Met
305 310 315 320

Ala Glu Asn Lys Pro Lys Arg Glu Gly Asn Asn Lys Glu Arg Asp His
325 330 335

Gly Pro Asn Ser Leu Gln Pro Glu Gly Lys His Leu Ala Glu Thr Leu
340 345 350

Lys Gln Glu Leu Asn Thr Ala Met Ser Gln Val Val Asp Thr Val Val
355 360 365

Lys Val Phe Ser Ala Lys Pro Ser Arg Gln Val Pro Gln Val Phe Pro
370 375 380

Pro Leu Gln Ile Pro Gln Ala Arg Phe Ala Val Asn Gly Glu Asn His
385 390 395 400

Asn Phe His Thr Ala Asn Gln Arg Leu Gln Cys Phe Gly Asp Val Ile
405 410 415

Ile Pro Asn Pro Leu Asp Thr Phe Gly Asn Val Gln Met Ala Ser Ser
420 425 430

Thr Asp Gln Thr Glu Ala Leu Pro Leu Val Val Arg Lys Asn Ser Ser
435 440 445

Asp Gln Ser Ala Ser Gly Pro Ala Ala Gly Gly His His Gln Pro Leu
450 455 460

His Gln Ser Pro Leu Ser Ala Thr Thr Gly Phe Thr Thr Ser Thr Phe
465 470 475 480

Arg His Pro Phe Pro Leu Pro Leu Met Ala Tyr Pro Phe Gln Ser Pro
485 490 495

Leu Gly Ala Pro Ser Gly Ser Phe Ser Gly Lys Asp Arg Ala Ser Pro
500 505 510

Glu Ser Leu Asp Leu Thr Arg Asp Thr Thr Ser Leu Arg Thr Lys Met
515 520 525

Ser Ser His His Leu Ser His His Pro Cys Ser Pro Ala His Pro Pro
530 535 540

Ser Thr Ala Glu Gly Leu Ser Leu Ser Leu Ile Lys Ser Glu Cys Gly
545 550 555 560

Asp Leu Gln Asp Met Ser Glu Ile Ser Pro Tyr Ser Gly Ser Ala Met
565 570 575

Gln Glu Gly Leu Ser Pro Asn His Leu Lys Lys Ala Lys Leu Met Phe
580 585 590

Phe Tyr Thr Arg Tyr Pro Ser Ser Asn Met Leu Lys Thr Tyr Phe Ser
595 600 605

Asp Val Lys Phe Asn Arg Cys Ile Thr Ser Gln Leu Ile Lys Trp Phe
610 615 620

Ser Asn Phe Arg Glu Phe Tyr Tyr Ile Gln Met Glu Lys Tyr Ala Arg
625 630 635 640

Gln Ala Ile Asn Asp Gly Val Thr Ser Thr Glu Glu Leu Ser Ile Thr
645 650 655

Arg Asp Cys Glu Leu Tyr Arg Ala Leu Asn Met His Tyr Asn Lys Ala
660 665 670

Asn Asp Phe Glu Val Pro Glu Arg Phe Leu Glu Val Ala Gln Ile Thr
675 680 685

Leu Arg Glu Phe Phe Asn Ala Ile Ile Ala Gly Lys Asp Val Asp Pro
690 695 700

Ser Trp Lys Lys Ala Ile Tyr Lys Val Ile Cys Lys Leu Asp Ser Glu
705 710 715 720

Val Pro Glu Ile Phe Lys Ser Pro Asn Cys Leu Gln Glu Leu Leu His
725 730 735

Glu